MINOLTA DYNAX 303 si (2156-191)
MINOLTA DYNAX 303 si DATE (2156-291)
MINOLTA MAXXUM QTsi (2156-390)
MINOLTA α -360 si (2156-690)

Type

: 35mm SLR with built-in flash, autoexposure (AE), and autofocus (AF)

Lens

: Minolta A-type bayonet mount

Shutter

Type	: Electronically-controlled, vertical-traverse, focal-plane type
Speed	: 1/2000 - 30 sec., Bulb
Flash sync speed	: 1/90 or slower, 1/45 with wireless flash
Self-timer	: Electronic with 10 sec. Delay; Cancelable (indicated by LED lamp)

Exposure

Exposure Modes	: P and 5 Subject Program modes
Subject Program Modes	: Portrait, Landscape, Close-up, Sports Action, Night portrait
Type	: Through-the-lens (TTL) metering; direct TTL metering for flash, Spot metering (ϕ 5.5mm)
Metering Cell	: 2-segment SPC for ambient light, flash-metering SPC for flash
Metering Range (f/1.4, ISO100)	: EV 4-20
Film-speed Setting	: Automatic setting for DX-coded film from ISO 25 to 5000 in 1/3EV-stop increments. Previous setting for non-DX-coded film. Recommended range for flash: ISO 25 - 1000

Focus

Mode	: Auto, Manual
Eye-start system	: None
Type	: TTL phase detection
Metering cell	: One CCD line sensor
AF Sensitivity Range	: EV -1 to 18 (ISO 100)
AF Illuminator	: Built-in flash type; Automatically activated in low light and low-contrast situations. With a dedicated flash unit, its AF illuminator (LED) will be selected automatically. Range: Approx. 1 - 5m (With 50mm lens; based on Minolta standard test method.)
Focus lock	: Available with S1 ON
Action predictive AF	: Available for moving subject at 4mm/sec.or slower on film plane

Film Transport

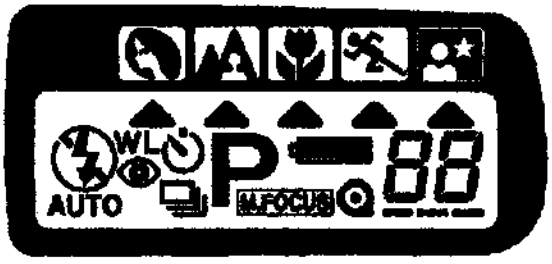
Loading	: Auto loading (Automatic advance to first frame)
Frame counter	: Forward counter
Film rewind	: Auto or manual rewind start (Frame counter counts down)
Rewind time	: Approx. 20 sec. (With 24-exp. roll)
Drive mode	: Single-frame drive, continuous drive (1 frames/sec.), self-timer

Viewfinder

Type	: Eye-level fixed roof mirror with silver vaporization
Focusing screen	: Acute matte (Not replaceable)
Field of view	: 90% × 90%
Magnification	: 0.75X (With 50mm lens at ∞)
Eye relief	: Approx. 16mm from eyepiece, 13mm from eyepiece frame
Diopter	: -1
Diopter Adjustment	: None
Eyepiece cup	: Soft type (detachable)
Panorama	: Frame masking

Data Panel

On-body LCD



Viewfinder LCD

Built-in flash

Up/down	: Auto-pop-up
Guide Number	: 12 (ISO 100 in meters)
Min. distance	: 1m
Coverage	: 28mm angle of view
Recycling Time	: Approx. 3 sec. (Based on Minolta standard test method)
Red-eye reduction	: Small bursts prior to main burst with built-in flash
Flash control	: Auto pop-up, auto flash; fill-flash and flash cancel selectable
Flash mode	: Autoflash, Fill flash, Flash Cancel, Red-eye reduction, Wireless/Remote flash
Other	: Built-in flash automatically turns off while dedicated flash is attached. Red-eye-reduction flash selectable Off-camera wireless flash control available. Ratio flash control NOT available

Panorama (-690 only)

: Horizontal frame masking in the viewfinder, data imprinting possible, mid-roll changeover

Battery Performance

(With AF Zoom 35-80/4-5.6, 24-exp. film, 20℃, fresh batteries, 2 rolls of 24-exposure used per month)

Condition-A: Standard frequency of camera operation

(Autofocus from infinity to the distance of 2m 3 times, shutter-release held partway down for 10 sec. before every shutter release. Other operations required for normal photographing are included.)

: Approx. 40 rolls with flash 0%
Approx. 17 rolls with flash 50%
Approx. 11 rolls with flash 100%

Condition-B: Low frequency of camera operation

(Autofocus from infinity to the distance of 2m once, shutter-release held partway down for 5 sec. before every shutter release. Other operations required for normal photographing are included.)

: Approx. 65 rolls with flash 0%
Approx. 23 rolls with flash 50%
Approx. 14 rolls with flash 100%

Power

Body	: CR2 X 2
Data back	: CR2025 X 1

Dimensions

QD	: 135.0 × 90.0 × 61.0mm
Non-QD	: 135.0 × 90.0 × 58.5mm

Weight (Without battery)

QD	: 355g (Without battery, with battery for QD)
Non-QD	: 340g (Without battery)

INDEX

2156-0105	1	2155-0404	4	2075-1062	2, 5
2156-0106	1	2156-0408	5	2078-1072	4
2078-0114	9	2155-0413	3	2078-1073	4
2094-0114	9	2155-0415	8	2085-1087	4
2156-0117	9	2153-0416	4	2153-1106	1
2156-0119	9	2156-0423	6	2092-1111	9
2153-0120	1	2155-0455	3	2076-1112	9
2089-0121	1	2017-0493	8	2092-1163	9
2154-0130	2	2155-0500	7, 8	2153-1164	9
2156-0135	10, 11	2092-0545	7	2092-1165	9
2156-0136	10, 11	2156-0580	6	2153-1165	1
2156-0137	10, 11	2156-0805	1	2153-1208	1
2085-0145	11			2153-1211	4
2153-0150	7	2153-1002	2	2153-1212	4
2154-0162	10	2153-1003	2	2419-1292	9
2153-0162	10	2092-1010	7	2154-1312	1
2154-0162	10	2089-1011	4	2156-1313	1
2153-0170	11	2092-1011	7	2154-1314	1
2078-0180	4	2092-1012	7	2156-1316	5
2153-0191	9	2153-1013	4	2156-1319	1
2092-0201	3	2092-1014	7	2156-1323	10
2153-0250	8	2092-1015	7	2156-1324	11
2153-0253	7	2092-1016	7	2153-1340	10
2153-0260	8	2092-1017	7	2153-1402	10
2092-0277	8	2092-1018	7	2156-1411	5
2092-0278	8	2092-1019	7	2077-1418	10
2155-0320	3	2078-1023	1	2089-1422	1
2078-0330	4	2153-1035	1	2153-1444	10
2092-0331	4	2153-1041	1	2154-1444	10
2153-0332	3	2154-1041	1	2153-1445	10
				2153-1446	10

INDEX

2153-1453	11	2153-1607	10	2153-2713	3
2153-1454	11	2156-1608	10	2092-2714	3
2156-1474	2	2153-1610	10	2092-2715	3
2156-1491	10	2153-1612	11	2092-2717	1
2156-1492	10	2153-1615	11	2092-2719	4
2156-1493	10	2153-1616	11	2097-2721	8
2156-1494	10	2153-1617	11		
2092-1505	7	2153-1618	10	2153-3014	3
2092-1506	7	2097-1622	10	2078-3030	3
2153-1511	7	2153-1902	1	2092-3051	4
2092-1515	7	2440-1991	1	2153-3055	4
2085-1516	7	2440-1993	1	2092-3056	4
2092-1521	7			2092-3057	4
2092-1523	3	2153-2004	3	2153-3058	4
2092-1524	3	2153-2265	4	2092-3303	4
2092-1525	3	2153-2531	7	2078-3304	1
2092-1526	7	2092-2532	7		
2092-1527	7	2153-2551	7	2156-4008	11
2092-1528	7	2085-2589	8	2156-4011	5
2092-1529	1	2077-2616	8	2156-4019	2
2153-1530	1	2085-2619	8	2156-4201	5
2092-1538	7	2092-2701	4	2156-4202	5
2092-1540	7	2153-2702	4	2094-4261	9
2153-1601	10	2092-2703	8	2155-4371	3
2154-1601	10	2092-2704	4	2153-4401	12
2153-1602	10	2092-2705	8	2153-4402	12
2101-1603	10	2092-2706	8	2153-4403	12
2153-1604	10	2092-2710	8	2153-4404	12
2101-1605	10	2092-2711	1	2101-4472	10
2153-1606	10	2092-2712	1	2102-4474	10

INDEX

2153-4502 2
2092-4512 5
2153-4513 2
2153-4517 2

2092-5011 6
2085-5012 6
2153-5013 6
2092-5019 6
2156-5020 2
2092-5025 6
2092-5026 6
2092-5027 6
2092-5035 6
2092-5036 6
2092-5037 6
2089-5051 8
2155-5052 8
2082-5054 8
2092-5111 8
2092-5112 8
2078-5125 8
2092-5133 7
2078-5145 6
2092-5805 6
2076-5806 8
2092-5817 6

2423-9109 7

9332-1261 5

9366-4016 5

9384-2190-50 . . . . . 2, 4, 5, 8

9384-2190-60 . . . . . 2, 3, 6, 7

9384-2290-90 . . . . . 4, 5, 8, 11

9384-2391-30 . . . . . 2, 3, 4, 6, 8

9391-0807-00 12
9391-0807-01 12
9391-0807-02 12
9391-0807-04 12
9391-0807-06 12
9391-0807-07 12
9391-0807-09 12

9391-1210-00 12
9391-1210-02 12
9391-1210-03 12
9391-1210-08 12

9721-0150-50 10

9747-1730-07 . . . . . 3, 4, 9, 8
9747-1735-07 . . . . . 3, 4, 6, 7, 10
9747-1735-15 1
9747-1740-04 1
9747-1740-07 . . . . . 2, 3, 11
9747-1740-15 1
9747-1745-04 1
9747-1745-07 . . . . . 1, 2, 4, 9
9747-1745-15 1
9747-1750-07 . . . . . 3, 4, 6, 7
9747-1750-15 1
9747-1760-07 3
9747-1760-15 1
9747-1765-15 2
9747-1770-15 1

9748-1730-07 1
9748-1735-07 10

9749-1725-07 3
9749-1730-07 9

9761-1735-01 11
9761-1735-07 10
9761-1745-15 4
9761-2050-07 7
9761-2050-15 4
9761-2055-01 11
9761-2055-15 7
9761-2060-15 4
9761-2065-07 3

9762-1745-07 8
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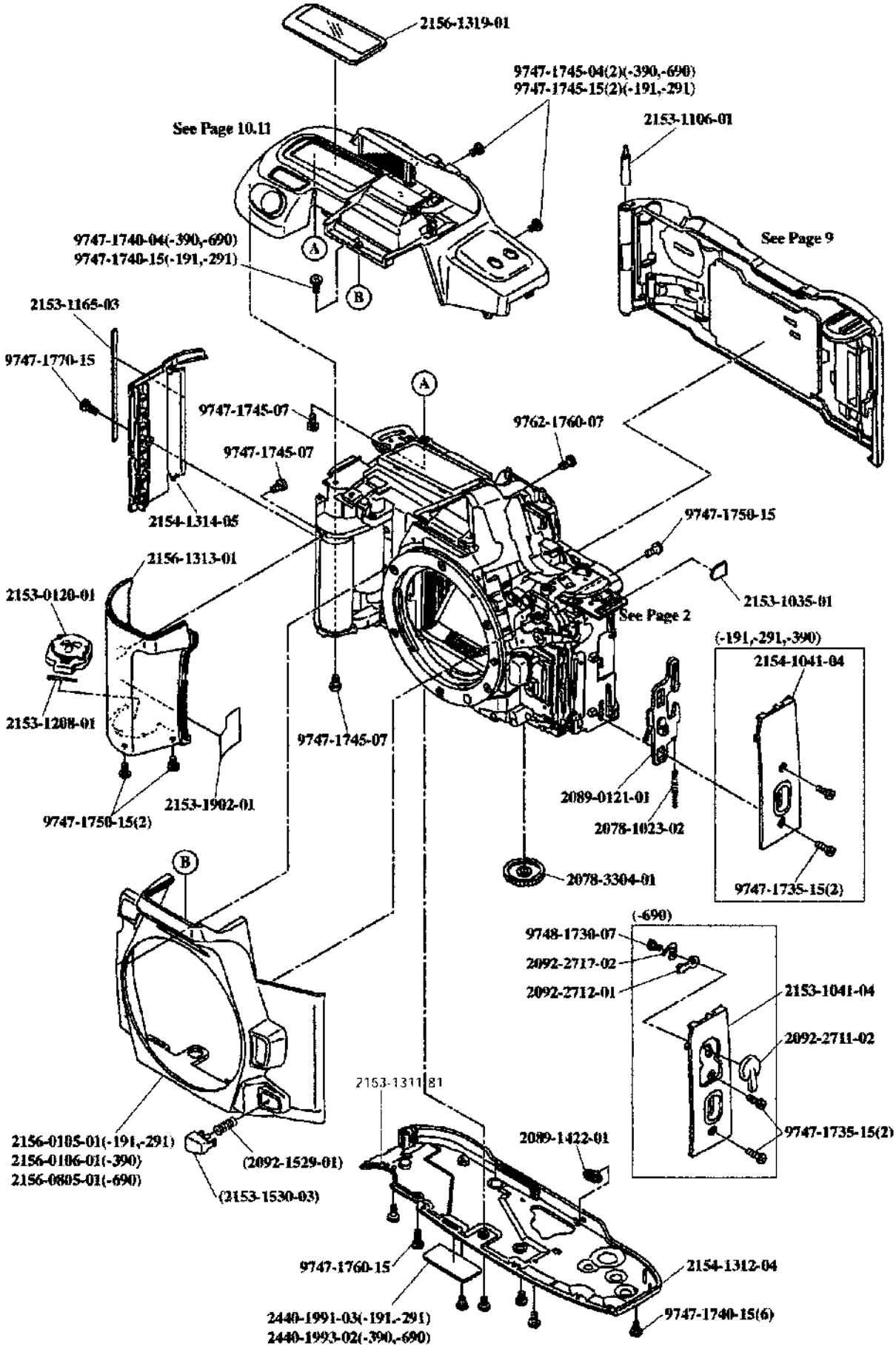
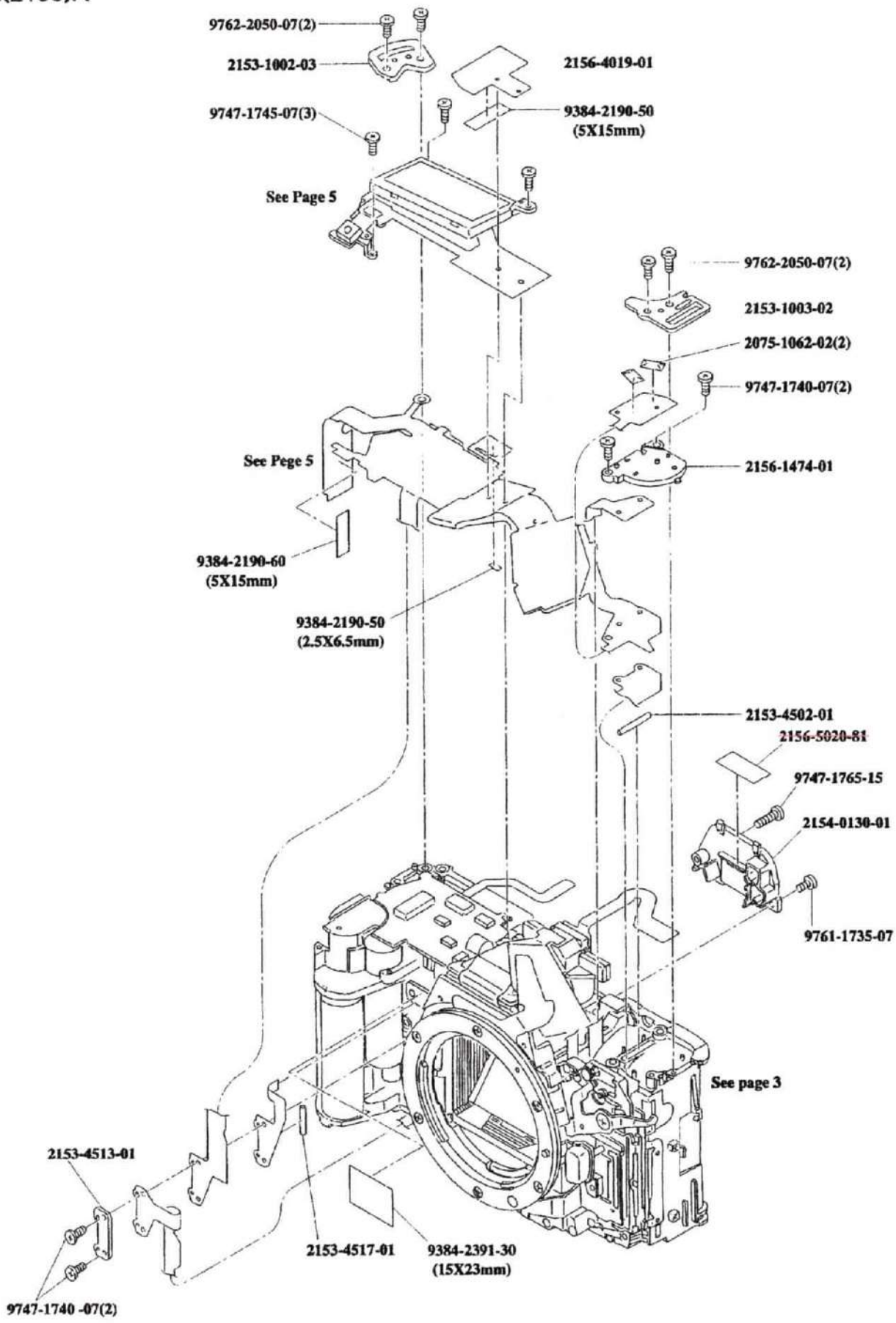
9762-2050-07 2

1(2156)A

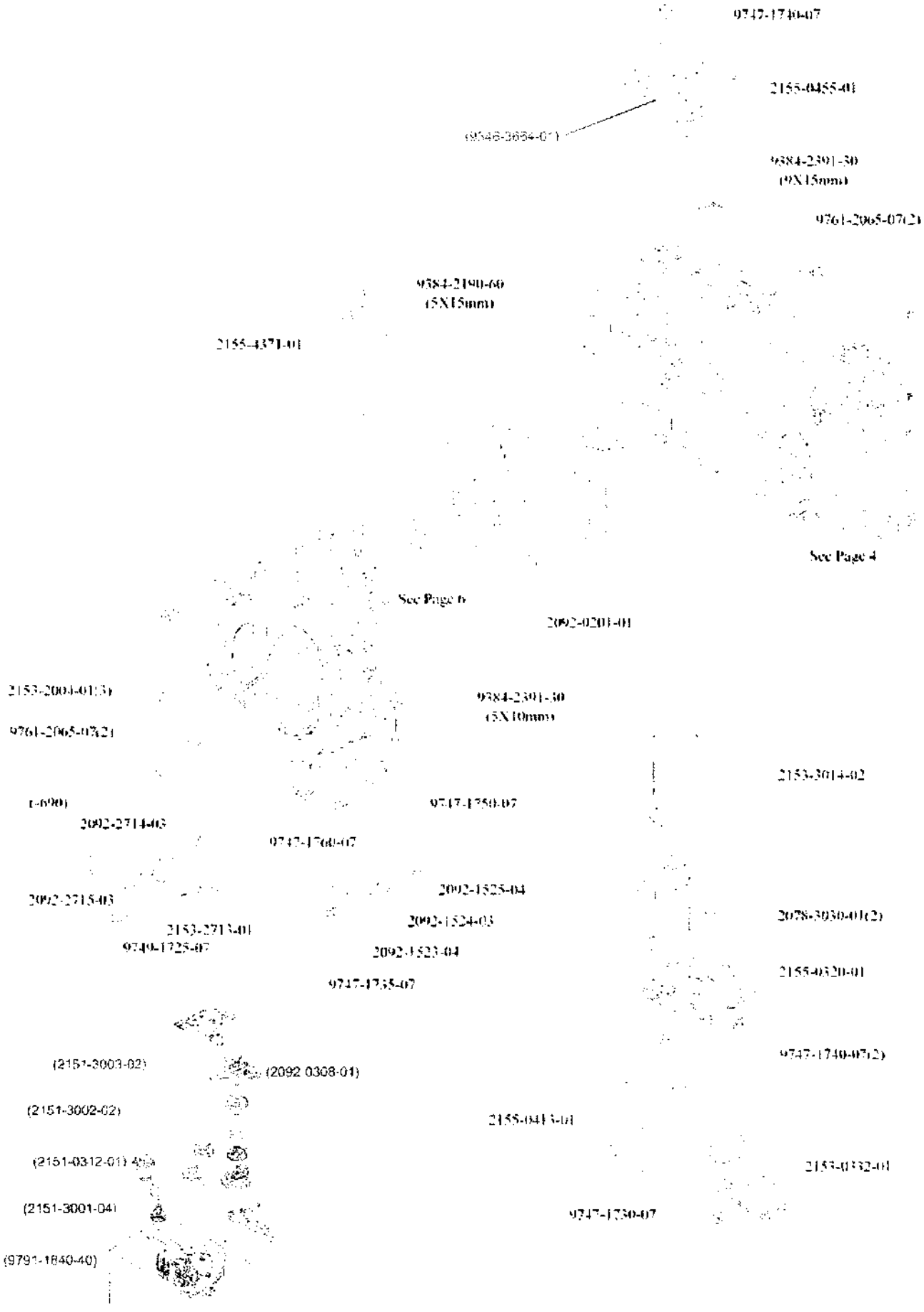

2156-1319-01
9747-1745-04(2)(-390,-690)
9747-1745-15(2)(-191,-291)
See Page 10.11
2153-1106-01
See Page 9
9747-1740-04(-390,-690)
9747-1740-15(-191,-291)
2153-1165-03
9747-1770-15
9747-1745-07
9762-1760-07
9747-1745-07
2154-1314-05
9747-1750-15
2153-1035-01
See Page 2
2156-1313-01
2153-0120-01
(-191,-291,-390)
2154-1041-04
2153-1208-01
9747-1745-07
2089-0121-01
2078-1023-02
2153-1902-01
9747-1750-15(2)
2078-3304-01
9747-1735-15(2)
(-690)
9748-1730-07
2092-2717-02
2092-2712-01
2153-1041-04
2092-2711-02
9747-1735-15(2)
2153-1311-01
2156-0105-01(-191,-291)
2156-0106-01(-390)
2156-0805-01(-690)
(2092-1529-01)
(2153-1530-03)
2089-1422-01
9747-1760-15
2154-1312-04
2440-1991-03(-191,-291)
2440-1993-02(-390,-690)
9747-1740-15(6)

PART NO	PART NAME		QTY.
2156-0105-01	FRONT COVER ASSY (-191, -291)	前カバーセット (-191, -291)	1
2156-0106-01	FRONT COVER ASSY (-390)	前カバーセット (-390)	
2156-0805-01	FRONT COVER ASSY (-690)	前カバーセット (-690)	
(2092-1529-01)	FOCUS-MODE BUTTON SP	フォーカスモード釦ＳＰ	1
(2153-1530-03)	FOCUS-MODE BUTTON	フォーカスモード釦	1
2153-0120-01	BATTERY COVER ASSY	電池室蓋セット	1
2089-0121-01	BACK-COVER RELEASE UNIT	裏蓋ロックレバーセット	1
2078-1023-02	LOCK SP	裏蓋ロツクＳＰ	1
2153-1035-01	SCREW COVER	ボディシート	1
2153-1041-04	SIDE COVER (-690)	サイドカバー (-690)	1
2154-1041-04	SIDE COVER (-191, -291, -390)	サイドカバー (-191, -291, -390)	
2153-1106-01	BACK COVER HINGE AXIS	裏蓋ヒンジ軸	1
2153-1165-03	LIGHT SHIELD SPONGE-B	遮光片Ｂ	1
2153-1208-01	BATTERY COVER HINGE AXIS	電池蓋ヒンジ軸	1
2154-1312-04	BOTTOM COVER	下カバー	1
2156-1313-01	GRIP COVER	グリップカバー	1
2154-1314-05	GRIP SIDE COVER	グリップサイドカバー	1
2156-1319-01	LCD WINDOW	ＬＣＤ窓	1
2089-1422-01	REWIND BUTTON	途中巻戻し釦	1
2153-1902-01	BATTERY (+/-) STICKER	電池表示シール	1
2440-1991-03	SERIAL NUMBER PLATE (JAPAN) (-191, -291)	ボディＮＯ．プレート (-191, -291)	1
2440-1993-02	SERIAL NUMBER PLATE (MALAYSIYA) (-390, -690)	ボディＮＯ．プレート (-390, -690)	
2092-2711-02	PANORAMA SWITCH (-690)	パノラマ切換えレバー (-690)	1
2092-2712-01	PANORAMA OPERATION LEVER-A (-690)	パノラマ可動レバーＡ (-690)	1
2092-2717-02	SPANO. CONTACT (-690)	ＳＰＡＮＯ．接片 (-690)	1
2078-3304-01	REWIND GEAR-B	巻戻しギアＢ	1
9747-1735-15	SCREW	ねじ	2
9747-1740-04	SCREW (-390, -690)	ねじ (-390, -690)	1
9747-1740-15	SCREW (-191, -291)	ねじ (-191, -291)	
9747-1740-15	SCREW	ねじ	6
9747-1745-04	SCREW (-390, -690)	ねじ (-390, -690)	2
9747-1745-15	SCREW (-191, -291)	ねじ (-191, -291)	
9747-1745-07	SCREW	ねじ	3
9747-1750-15	SCREW	ねじ	3
9747-1760-15	SCREW	ねじ	1
9747-1770-15	SCREW	ねじ	1
9748-1730-07	SCREW (-690)	ねじ (-690)	1
9762-1760-07	SCREW	ねじ	1

2(2156)A

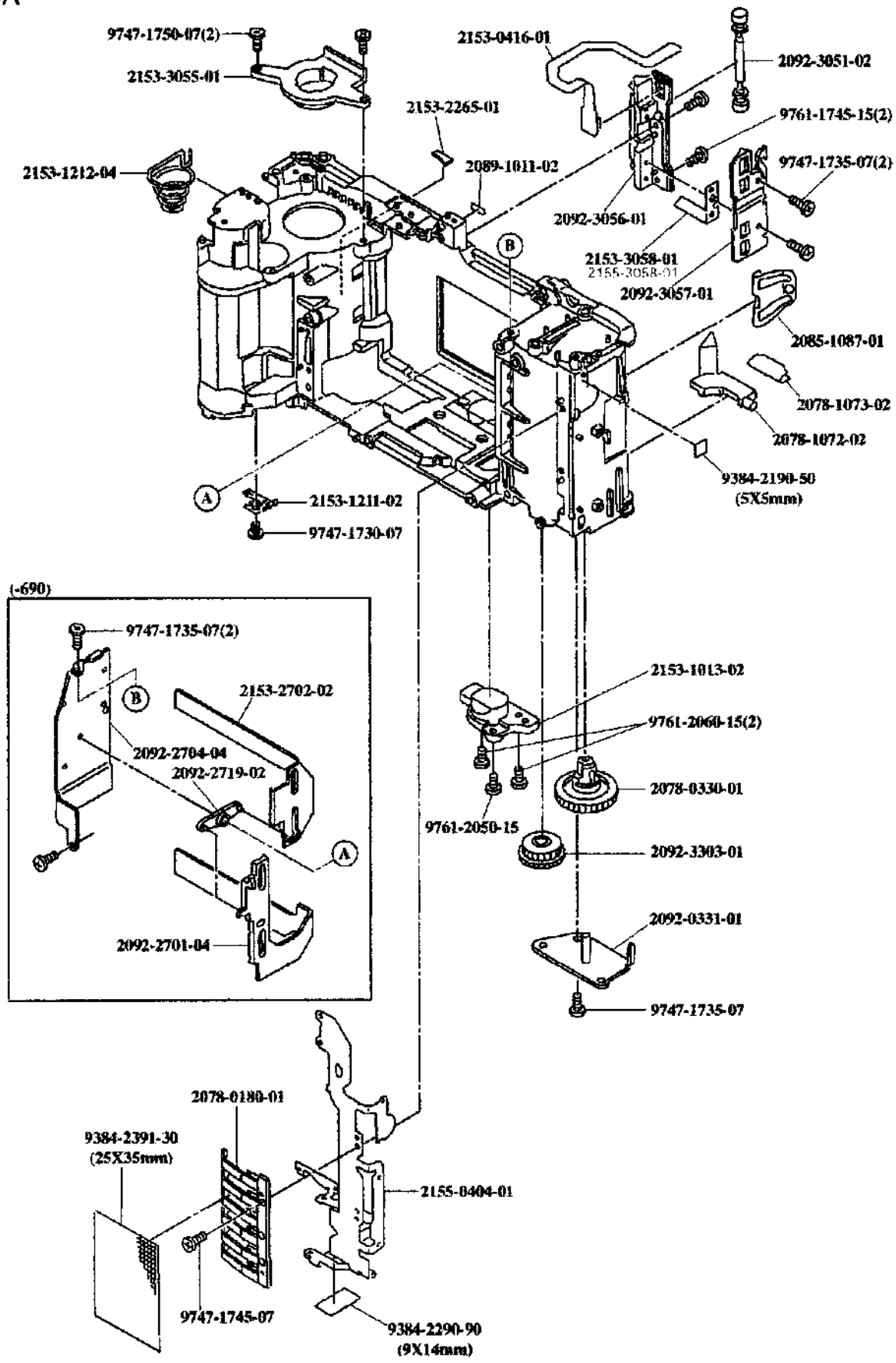

9762-2050-07(2)
2153-1002-03
2156-4019-01
9747-1745-07(3)
9384-2190-50
(5X15mm)
See Page 5
9762-2050-07(2)
2153-1003-02
2075-1062-02(2)
9747-1740-07(2)
See Pege 5
2156-1474-01
9384-2190-60
(5X15mm)
9384-2190-50
(2.5X6.5mm)
2153-4502-01
2156-5020-81
9747-1765-15
2154-0130-01
9761-1735-07
See page 3
2153-4513-01
2153-4517-01
9384-2391-30
(15X23mm)
9747-1740 -07(2)

PART NO	PART NAME		QTY.
2154-0130-01	EYEPIECE FRAME ASSY	接眼枠セット	1
2153-1002-03	STRAP EYELET (R)	巻上げ側吊環	1
2153-1003-02	STRAP EYELET (L)	巻戻し側吊環	1
9384-2391-30	ACETATE TAPE (PER ROLL)	アセテートクロステープ	1
2075-1062-02	OVER RIDE CONTACT	オーバーライド接片	2
2156-1474-01	CONNECTOR BASE PLATE	コネクター台板	1
2156-4019-01	FPC-S	Sフレキ	1
2153-4502-01	CONNECTOR RUBBER-A	コネクターゴムA	1
2153-4513-01	CONNECTOR PRESSURE	コネクター押え板	1
2153-4517-01	CONNECTOR RUBBER-B	コネクターゴムB	1
2156-5020-81	EYEPIECE DUSTPROOF SHEET	接眼防塵シート	1
9384-2190-50	DOUBLE-FACED TAPE (PER ROLL)	両面テープ	2
9384-2190-60	DOUBLE-FACED TAPE (PER ROLL)	両面テープ	1
9761-1735-07	SCREW	ねじ	5
9747-1745-07	SCREW	ねじ	3
9747-1765-15	SCREW	ねじ	1
9762-2050-07	SCREW	ねじ	4

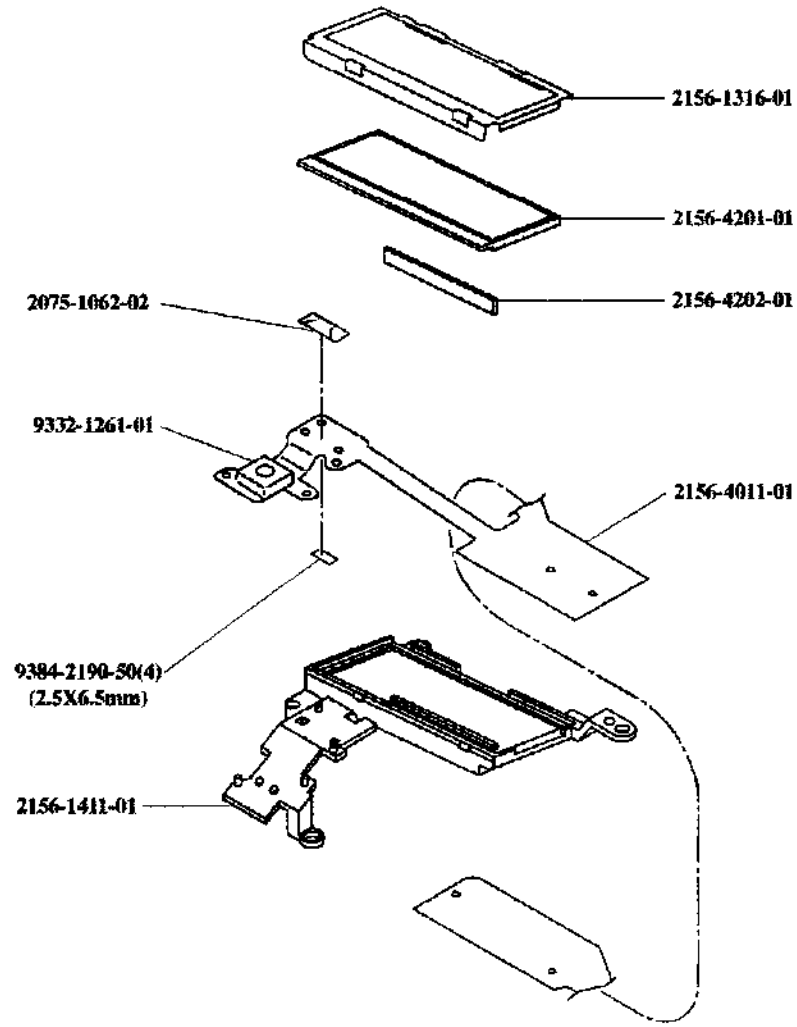

9747-1740-07
2155-0455-01
(9546-3654-01)
9384-2391-30
(9X15mm)
9761-2065-07(2)
9384-2190-60
(5X15mm)
2155-4371-01
See Page 4
See Page 6
2092-0201-01
2153-2004-01(3)
9761-2065-07(2)
9384-2391-30
(5X10mm)
2153-3014-02
(-690)
2092-2714-03
9747-1750-07
9747-1760-07
2092-1525-04
2092-2715-03
2092-1524-03
2078-3030-01(2)
2153-2713-01
9749-1725-07
2092-1523-04
2155-0320-01
9747-1755-07
9747-1740-07(2)
(2151-3003-02)
(2092 0308-01)
(2151-3002-02)
2155-0413-01
(2151-0312-01)
2153-0332-01
(2151-3001-04)
9747-1730-07
(9791-1840-40)

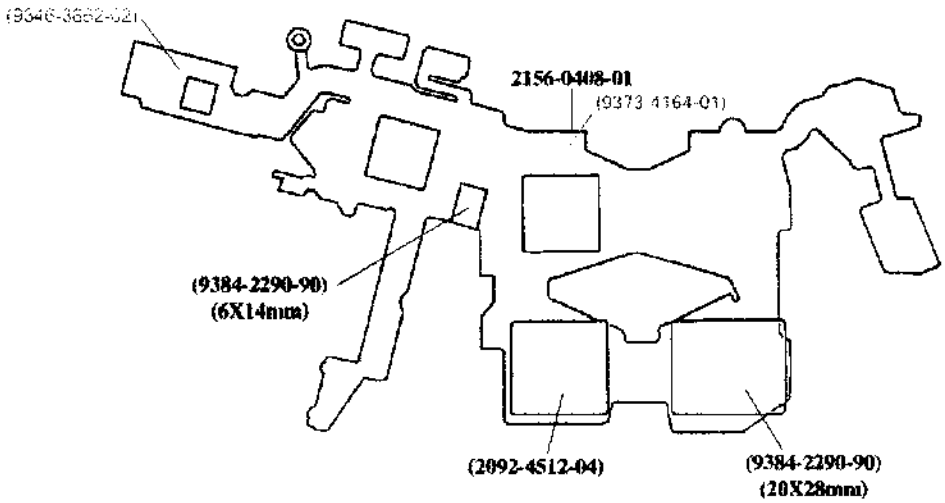
PART NO	PART NAME		QTY.
2092-0201-01	SHUTTER UNIT	シャッターユニット	1
2155-0320-01	WINDING BASE PLATE ASSY	巻上げ台板セット	1
(2092-0308-01)	PLANETARY GEAR ASSY	遊星ギヤセット	1
(2151-0312-01)	SPOOL DRIVE GEAR ASSY	スプール駆動ギヤセット	1
(2151-3001-04)	REDUCTION GEAR-A	減速ギヤA	1
(2151-3002-02)	REDUCTION GEAR-B	減速ギヤB	1
(2151-3003-02)	REDUCTION GEAR-C	減速ギヤC	1
(9791-1840-40)	WASHER	ワッシャ	1
2153-0332-01	REWIND BASE PLATE ASSY	巻戻し台板セット	1
2155-0413-01	FPC-M ASSY	Mフレキセット	1
2155-0455-01	FLASH CONVERTER PCB ASSY	フラッシュコンバーター基板セット	1
(9546-3664-01)	FUSE	ヒューズ	1
2092-1523-04	SRAF. CONTACT-A	ＳＲＡＦ接片Ａ	1
2092-1524-03	SRAF. CONTACT-B	ＳＲＡＦ接片Ｂ	1
2092-1525-04	SRAF. CONTACT SPACER	ＳＲＡＦ接片スペーサー	1
2153-2004-01	SCREW	ねじ	3
2153-2713-01	PANORAMA COUPLING LEVER (-690)	パノラマ連動レバー (-690)	1
2092-2714-03	PANORAMA OPERATION SP-A (-690)	パノラマ駆動ＳＰ－Ａ (-690)	1
2092-2715-03	PANORAMA COUPLING SP (-690)	パノラマ連結ＳＰ (-690)	1
2153-3014-02	SPOOL	スプール	1
2078-3080-01	SILENT COLLAR	消音ゴム	2
2155-4371-01	C157	Ｃ１５７	1
9384-2190-60	DOUBLE-FACED TAPE (PER ROLL)	両面テープ	1
9384-2391-30	ACETATE TAPE (PER ROLL)	アセテートクロステープ	1
9747-1730-07	SCREW	ねじ	1
9747-1735-07	SCREW	ねじ	1
9747-1740-07	SCREW	ねじ	3
9747-1750-07	SCREW	ねじ	1
9747-1760-07	SCREW	ねじ	1
9749-1725-07	SCREW (-690)	ねじ (-690)	1
9761-2065-07	SCREW	ねじ	4

4(2156)A


9747-1750-07(2)
2153-3055-01
2153-0416-01
2092-3051-02
2153-2265-01
9761-1745-15(2)
2153-1212-04
2089-1011-02
9747-1735-07(2)
2092-3056-01
2153-3058-01
2155-3058-01
2092-3057-01
2085-1087-01
2078-1073-02
2078-1072-02
9384-2190-50
(5X5mm)
2153-1211-02
9747-1730-07
(-690)
9747-1735-07(2)
2153-2702-02
2092-2704-04
2092-2719-02
2092-2701-04
2153-1013-02
9761-2060-15(2)
2078-0330-01
9761-2050-15
2092-3303-01
2092-0331-01
9747-1735-07
2078-0180-01
9384-2391-30
(25X35mm)
2155-0404-01
9747-1745-07
9384-2290-90
(9X14mm)

PART NO	PART NAME		QTY.
2078-0180-01	DX CONTACTS SET	ＣＡＳ接片セット	1
2078-0330-01	REWIND FORK SET	巻戻しフォークセット	1
2092-0331-01	REWIND FORK BASE PLATE UNIT	巻戻しフォーク台板セット	1
2155-0404-01	FPC-D ASSY	Ｄフレキセット	1
2153-0416-01	FPC-P ASSY	Ｐフレキセット	1
2089-1011-02	LOADING INDEX	ローディング指標	1
2153-1013-02	TRIPOD BASE PLATE	三脚台板	1
2078-1072-02	FILM CARTRIDGE RECEIVER	パトロ金受け	1
2078-1073-02	CARTRIDGE RECEIVER SP	ロ金受回転ＳＰ	1
2085-1087-01	SIDE SP	サイドＳＰ	1
2153-1211-02	BATTERY CONTACT (+)	電池接片　（＋）	1
2153-1212-04	BATTERY CONTACT (-)	電池接片　（－）	1
2153-2265-01	WINDING SUPPORT SHEET	フィルム規制シート	1
2092-2701-04	PANORAMA FRAME PLATE-A (-690)	パノラマ遮光板Ａ (-690)	1
2153-2702-02	PANORAMA FRAME PLATE-B (-690)	パノラマ遮光板Ｂ (-690)	1
2092-2704-04	PANORAMA FRAME HOLDER-A (-690)	パノラマ遮光板押えＡ (-690)	1
2092-2719-02	PANORAMA COUPLING LEVER-B (-690)	パノラマ遮光連動レバーＢ (-690)	1
2092-3051-02	FILM ROLLER	フィルムローラー	1
2153-3055-01	WINDING MOTOR BASE PLATE	巻上げモーター台板	1
2092-3056-01	FILM GUIDE	フィルムガイド	1
2092-3057-01	FPC-P HOLDER	Ｐフレキ押え板	1
2153-3058-01	FILM LEADER SHEET	フィルムリードシート	1
2153-3058-01	FILM LEADER SHEET	[illegible]	1
2092-3303-01	REWIND GEAR-A	巻戻しギアＡ	1
9384-2190-50	DOUBLE-FACED TAPE (PER ROLL)	両面テープ	1
9384-2290-90	POLYESTER TAPE (PER ROLL/60M) YELLOW	ポリエステルテープ	1
9384-2391-30	ACETATE TAPE (PER ROLL)	アセテートクロステープ	1
9747-1730-07	SCREW	ねじ	1
9747-1735-07	SCREW	ねじ	3
9747-1735-07	SCREW (-690)	ねじ (-690)	2
9747-1745-07	SCREW	ねじ	1
9747-1750-07	SCREW	ねじ	2
9761-1745-15	SCREW	ねじ	2
9761-2050-15	SCREW	ねじ	1
9761-2060-15	SCREW	ねじ	2


2156-1316-01
2156-4201-01
2156-4202-01
2075-1062-02
9332-1261-01
2156-4011-01
9384-2190-50(4)
(2.5X6.5mm)
2156-1411-01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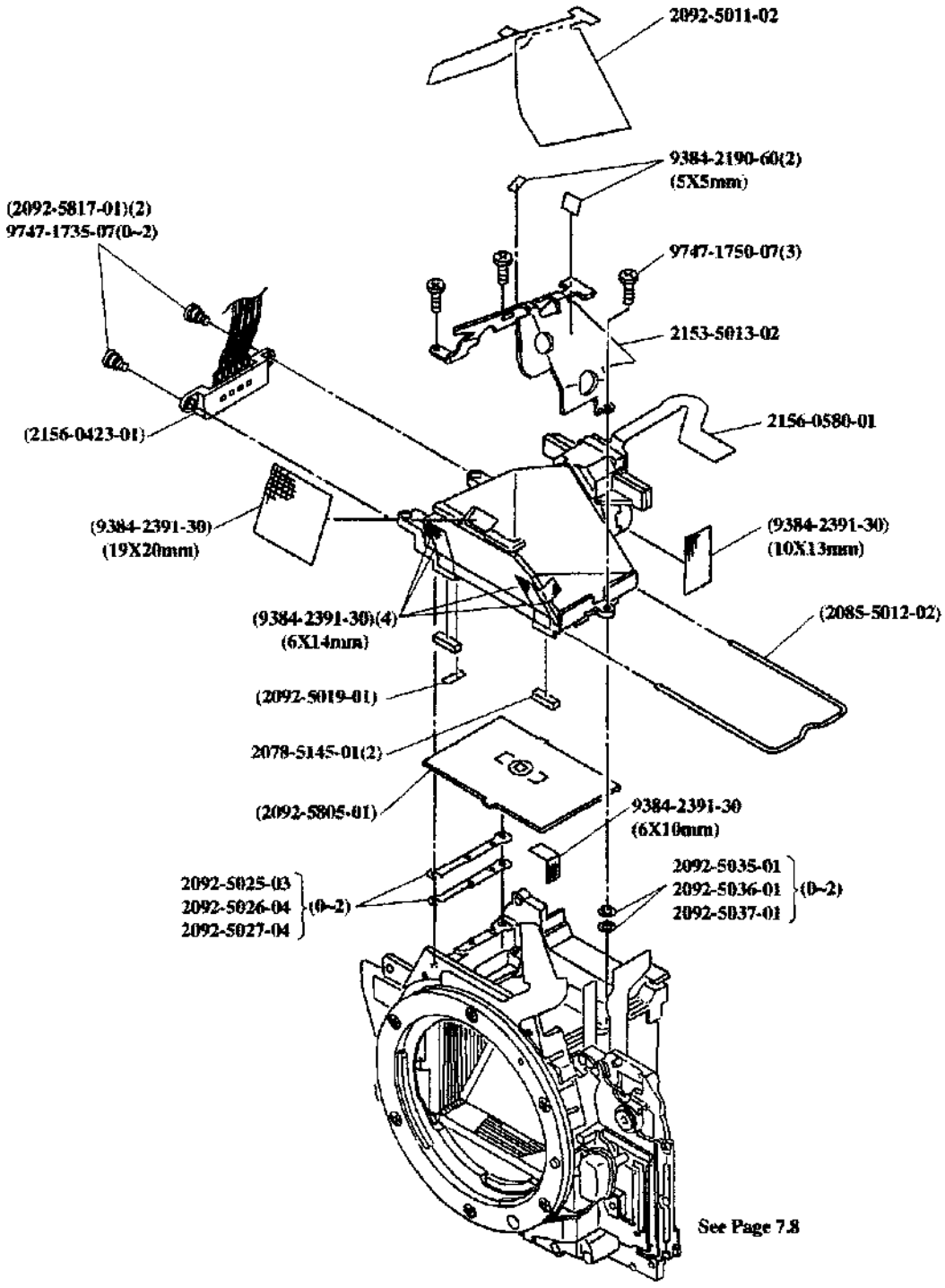
2156-0408-01
(9373 4164-01)
(9384-2290-90)
(6X14mm)
(2092-4512-04)
(9384-2290-90)
(20X28mm)

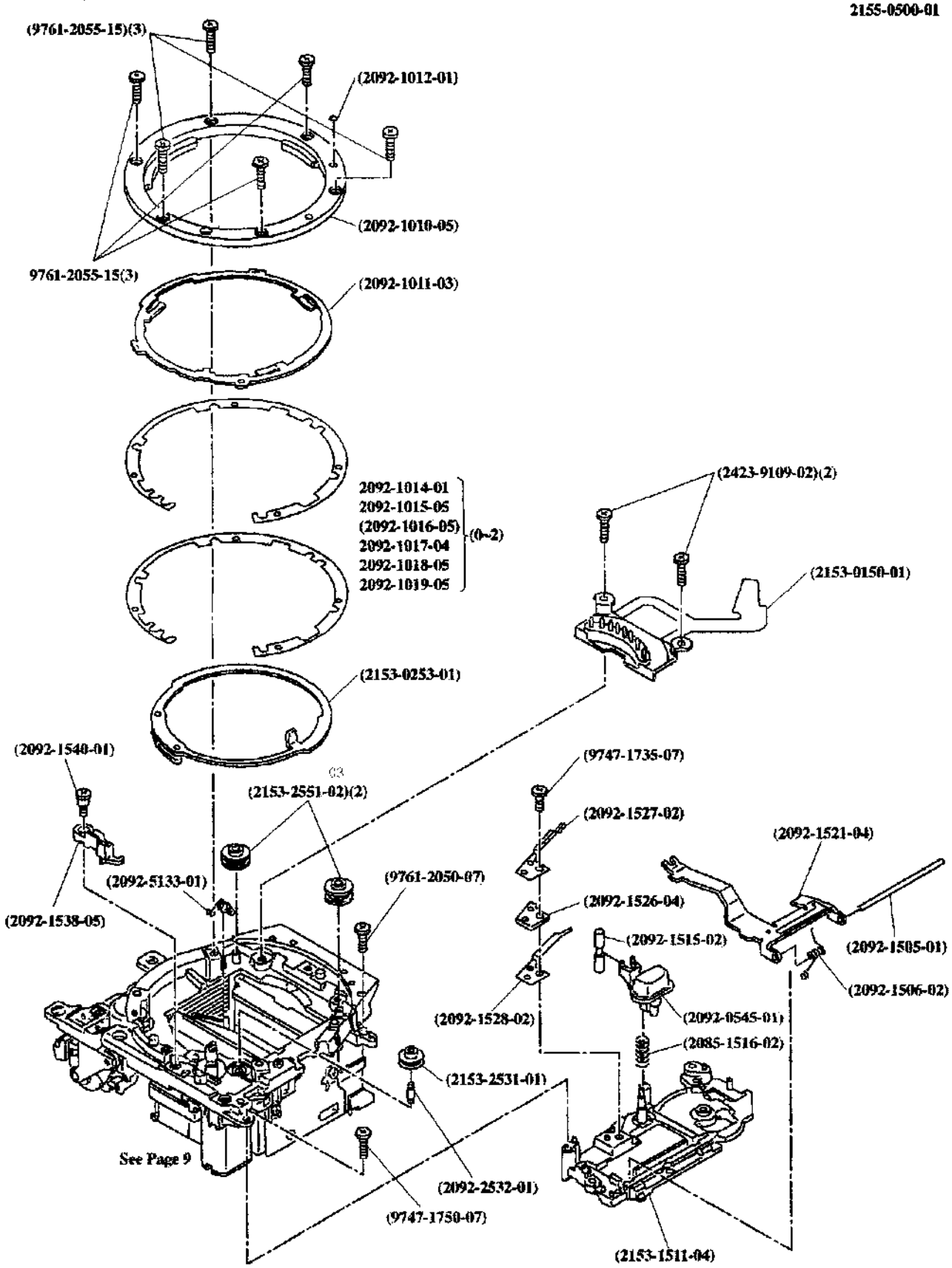
PART NO	PART NAME		QTY.
2156-0408-01	FPC-A ASSY	Aフレキセット	1
(2092-4512-04)	FPC-A BASE PLATE	Aフレキ台板	1
(9346-3862-02)	FUSE	ヒューズ	1
(9366-4061-01)	IC-5	ＩＣ５	1
(9375-4164-01)	XL-1	ＸＬ－１	1
(9384-2290-90)	POLYESTER TAPE (PER ROLL/60M) YELLOW	ポリエステルテープ	2
2075-1062-02	OVER RIDE CONTACT	オーバーライド接片	1
2156-1316-01	LCD1 PRESSURE	ＬＣＤ１押え	1
2156-1411-01	LCD HOLDER	ＬＣＤホルダー	1
2156-4011-01	FPC-K	Kフレキ	1
2156-4201-01	LCD1	ＬＣＤ１	1
2156-4202-01	LCD1 CONNECTOR	ＬＣＤ１コネクター	1
9332-1261-01	SWITCH	ＳＷ	1
9384-2190-50	DOUBLE-FACED TAPE (PER ROLL)	両面テープ	1


2092-5011-02
9384-2190-60(2)
(5X5mm)
(2092-5817-01)(2)
9747-1735-07(0~2)
9747-1750-07(3)
2153-5013-02
(2156-0423-01)
2156-0580-01
(9384-2391-30)
(19X20mm)
(9384-2391-30)
(10X13mm)
(9384-2391-30)(4)
(6X14mm)
(2085-5012-02)
(2092-5019-01)
2078-5145-01(2)
(2092-5805-01)
9384-2391-30
(6X10mm)
2092-5025-03
2092-5026-04
2092-5027-04
(0~2)
2092-5035-01
2092-5036-01
2092-5037-01
(0~2)

See Page 7.8

PART NO	PART NAME		QTY.
2156-0580-01	PENTA-PRISM ASSY	ペンタプロックセット	1
(2156-0423-01)	LED PCB ASSY	ＬＥＤ基板セット	1
(2085-5012-02)	FRESNEL LENS SP	焦点板押えＳＰ	1
(2092-5019-01)	PENTA-PRISM LIGHT SHIELD SHEET	ペンタ遮光シート	1
(2092-5805-01)	FOCUSING SCREEN	焦点板	1
(2092-5817-01)	SCREW	ねじ	2
(9384-2391-30)	ACETATE TAPE (PER ROLL)	アセテートクロステープ	6
2092-5011-02	PENTA INSULATION SHEET	ペンタ絶縁シート	1
2153-5013-02	PENTA PRESSURE	ペンタ押え	1
2092-5025-03	VB ADJUSTMENT PLATE-A (T=0.2)	ＶＢ調整板Ａ	0-2
2092-5026-04	VB ADJUSTMENT PLATE-B (T=0.15)	ＶＢ調整板Ｂ	
2092-5027-04	VB ADJUSTMENT PLATE-C (T=0.1)	ＶＢ調整板Ｃ	
2092-5035-01	VB ADJUSTMENT PLATE-D (T=0.2)	ＶＢ調整板Ｄ	0-2
2092-5036-01	VB ADJUSTMENT PLATE-E (T=0.15)	ＶＢ調整板Ｅ	
2092-5037-01	VB ADJUSTMENT PLATE-F (T=0.1)	ＶＢ調整板Ｆ	
2078-5145-01	MIRROR CUSION	主ミラークッション	2
9384-2190-60	DOUBLE-FACED TAPE (PER ROLL)	両面テープ	2
9384-2391-30	ACETATE TAPE (PER ROLL)	アセテートクロステープ	1
9747-1735-07	SCREW	ねじ	2
9747-1750-07	SCREW	ねじ	3

2155-0500-01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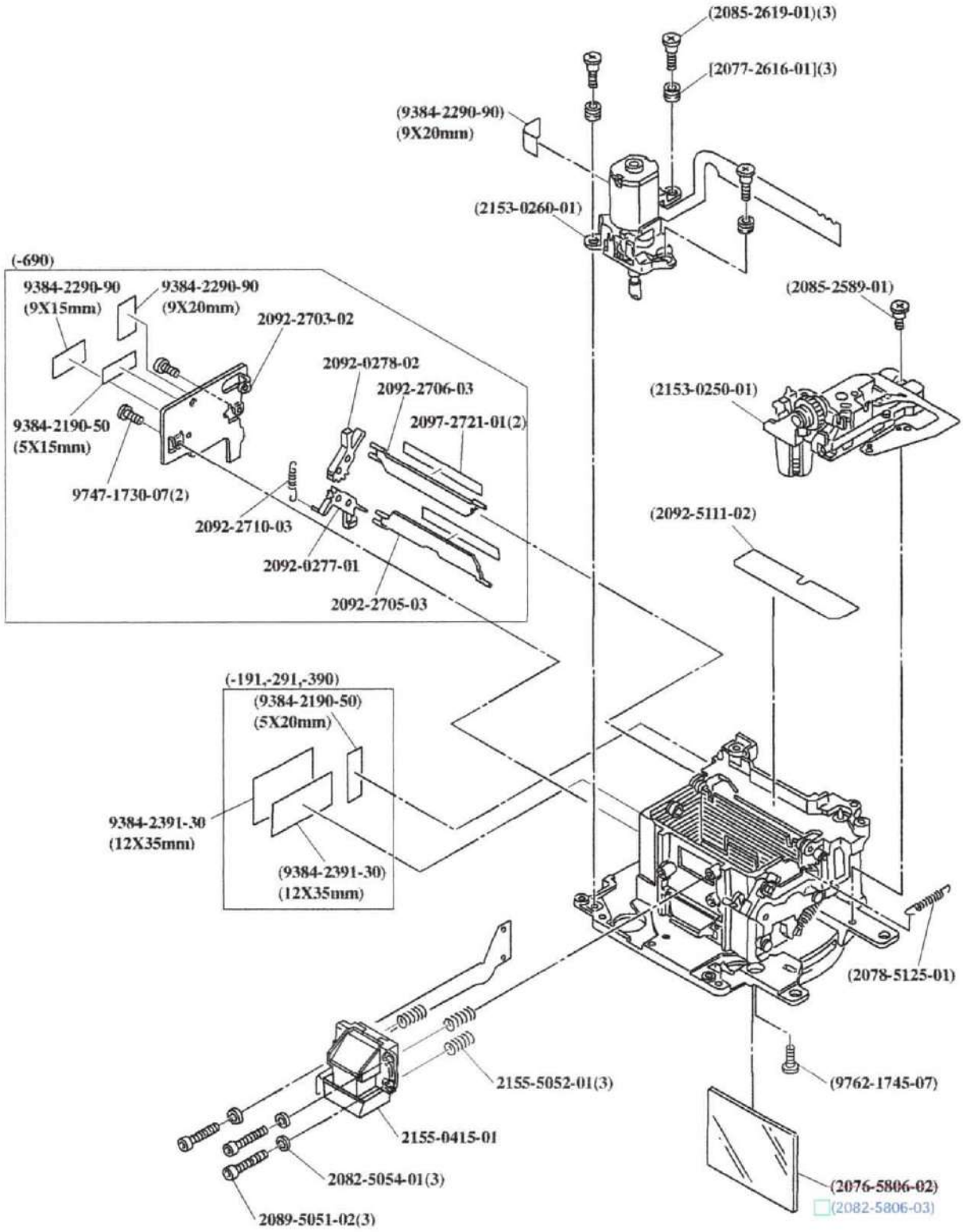
2092-1014-01
2092-1015-05
(2092-1016-05)
2092-1017-04
2092-1018-05
2092-1019-05
(0~2)
(2153-0253-01)
(2423-9109-02)(2)
(2153-0150-01)
(2092-1540-01)
(2153-2551-02)(2)
(2092-5133-01)
(2092-1538-05)
(9761-2050-07)
(9747-1735-07)
(2092-1527-02)
(2092-1521-04)
(2092-1526-04)
(2092-1515-02)
(2092-1505-01)
(2092-1506-02)
(2092-1528-02)
(2092-0545-01)
(2085-1516-02)
(2153-2531-01)
(2092-2532-01)
(9747-1750-07)
(2153-1511-04)
See Page 9

PART NO	PART NAME		QTY.
2155-0500-01	MIRROR BOX ASSY	ミラーボックスセット	1
(2153-0160-01)	BL CONTACT HOLDER ASSY	ＢＬ接点ホルダーセット	1
(2153-0253-01)	APERTURE RING ASSY	絞りリングセット	1
(2092-0545-01)	LENS-RELEASE UNIT	レンズロック釦セット	1
(2092-1010-05)	BAYONET LENS MOUNT	マウント	1
(2092-1011-03)	BAYONET SP	リングＳＰ	1
(2092-1012-01)	MOUNTING INDEX	マウント指標	1
(2092-1505-01)	COUPLER LEVER AXIS	カプラーレバー軸	1
(2092-1506-02)	COUPLER LEVER SP	カプラーレバーＳＰ	1
(2153-1511-04)	AF/M CONTACT BASE PLATE	ＡＦ／Ｍ接片台板	1
(2092-1515-02)	LENS-RELEASE	レンズロックピン	1
(2085-1516-02)	LOCK SET SP	ロックセットＳＰ	1
(2092-1521-04)	COUPLER LEVER	カプラーレバー	1
(2092-1526-04)	SLLK. CONTACT SPACER	ＳＬＬＫ接片スペーサー	1
(2092-1527-02)	SLLK. CONTACT-A	ＳＬＬＫ接片Ａ	1
(2092-1528-02)	SLLK. CONTACT-B	ＳＬＬＫ接片Ｂ	1
(2092-1538-05)	COUPLER STOP LEVER	カプラー係止レバー	1
(2092-1540-01)	SCREW	ねじ	1
(2153-2531-01)	RING ROLLER	リングローラー	1
(2092-2532-01)	RING ROLLER AXIS	リングローラー軸	1
*(2153-2551-02	RING ROLLER-A	リングローラーＡ	2
(2153-2551-03)	RING ROLLER-A	リングローラーＡ	
(2092-5133-01)	SUB MIRROR SP	サブミラーＳＰ	1
(2423-9109-02)	SCREW	ねじ	2
(9747-1735-07)	SCREW	ねじ	1
(9747-1750-07)	SCREW	ねじ	1
(9761-2050-07)	SCREW	ねじ	1
(9761-2055-15)	SCREW	ねじ	3
2092-1014-01	BB ADJUSTMENT WASHER-A (T=0.05)	ＢＢ調整ワッシャＡ	0-2
2092-1015-05	BB ADJUSTMENT WASHER-B (T=0.08)	ＢＢ調整ワッシャＢ	
2092-1016-05	BB ADJUSTMENT WASHER-C (T=0.1)	ＢＢ調整ワッシャＣ	
2092-1017-04	BB ADJUSTMENT WASHER-D (T=0.12)	ＢＢ調整ワッシャＤ	
2092-1018-05	BB ADJUSTMENT WASHER-E (T=0.15)	ＢＢ調整ワッシャＥ	
2092-1019-05	BB ADJUSTMENT WASHER-F (T=0.2)	ＢＢ調整ワッシャＦ	
9761-2055-15	SCREW	ねじ	3

8(2156)B

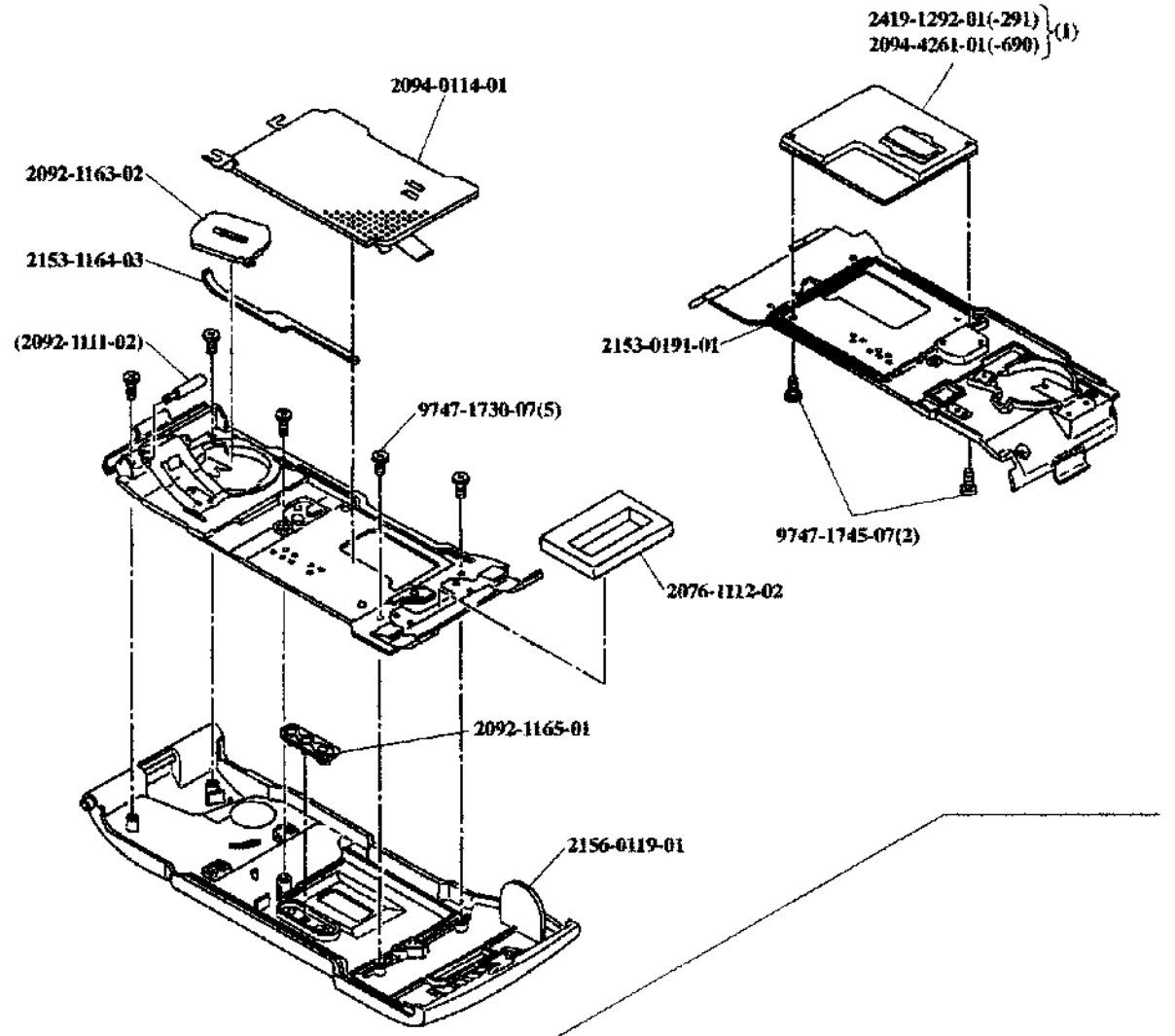
2155-0500-01



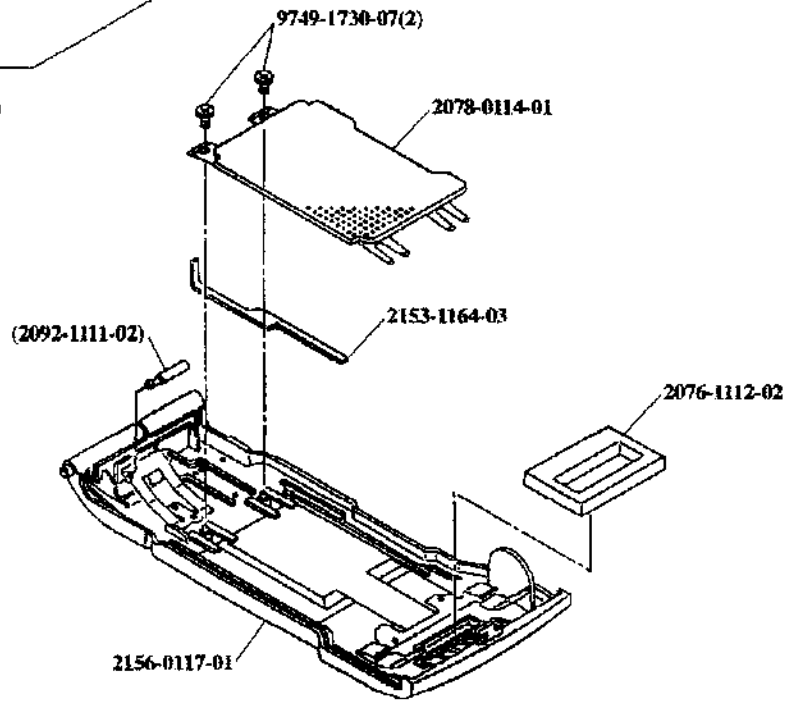
PART NO	PART NAME		QTY.
2155-0500-01	MIRROR BOX ASSY	ミラーボックスセット	1
(2153-0250-01)	APERTURE BASE PLATE ASSY	絞り台板セット	1
(2153-0260-01)	AF MOTOR BASE ASSY	ＡＦモーター台板セット	1
[2077-2616-01]	COLLAR	ＡＦサイレントカラー	3
(2017-0493-03)	SPC-2	ＳＰＣ ２	1
(2085-2589-01)	SCREW	ねじ	1
(2085-2619-01)	SCREW	ねじ	3
(2092-5111-02)	LIGHT SHIELD SHEET-A	遮光シートＡ	1
(2092-5112-02)	MASK SHEET	マスク板	1
(2078-5125-01)	MIRROR DOWN SP	主ミラーダウンＳＰ	1
(2076-5806-02)	MAIN MIRROR	主ミラー	1
(2082-5806-03)	MAIN MIRROR	主ミラー	1
(9384-2190-50)	DOUBLE-FACED TAPE (PER ROLL) (-191, -291, -390)	両面テープ (-191, -291, -390)	1
(9384-2290-90)	POLYESTER TAPE (PER ROLL/60M) YELLOW	ポリエステルテープ	1
(9384-2391-30)	ACETATE TAPE (PER ROLL) (-191, -291, -390)	アセテートクロステープ (-191, -291, -390)	1
(9762-1745-07)	SCREW	ねじ	1
2092-0277-01	PANORAMA OPERATION LEVER UNIT-C (-690)	パノラマ可動レバーセットＣ (-690)	1
2092-0278-02	PANORAMA OPERATION LEVER UNIT-B (-690)	パノラマ可動レバーセットＢ (-690)	1
2155-0415-01	FPC-B ASSY	Ｂフレキセット	1
2092-2703-02	PANORAMA FRAME HOLDER-B (-690)	パノラマ遮光板押え－Ｂ (-690)	1
2092-2705-03	PANORAMA FRAME PLATE-C (-690)	パノラマ遮光板Ｃ (-690)	1
2092-2706-03	PANORAMA FRAME PLATE-D (-690)	パノラマ遮光板Ｄ (-690)	1
2092-2710-03	PANORAMA OPERATION SP-B (-690)	パノラマ駆動ＳＰ－Ｂ (-690)	1
2097-2721-01	PROTECTION SHEET (-690)	保護シート (-690)	2
2089-5051-02	SCREW	ねじ	3
2155-5052-01	AF ADJUSTMENT SP	ＡＦ調整ＳＰ	3
2082-5054-01	WASHER	ワッシャ	3
9384-2190-50	DOUBLE-FACED TAPE (PER ROLL) (-690)	両面テープ (-690)	1
9384-2290-90	POLYESTER TAPE (PER ROLL/60M) YELLOW (-690)	ポリエステルテープ (-690)	2
9384-2391-30	ACETATE TAPE (PER ROLL) (-191, -291, -390)	アセテートクロステープ (-191, -291, -390)	1
9747-1730-07	SCREW (-690)	ねじ (-690)	2

9(2156)A

DATE MODEL (-291,-690)



NON DATE MODEL (-191,-390)



DATE MODEL (-291, -690)

PART NO	PART NAME		QTY.
2094-0114-01	PRESSURE PLATE SET	圧着板セット	1
2156-0119-01	BACK COVER ASSY	裏蓋セット	1
2153-0191-01	QD BASE PLATE ASSY	デートモジュール台板セット	1
(2092-1111-02)	BACK COVER ROLLER	裏蓋可動ローラー	1
2076-1112-02	LIGHT SHIELD SPONGE	パト表示窓遮光片	1
2092-1163-02	BATTERY COVER	電池蓋	1
2153-1164-03	LIGHT SHIELD SPONGE-A	遮光片A	1
2092-1165-01	KEY	切換え釦	1
2419-1292-01	DATE MODULE (-291)	デートモジュール (-291)	1
2094-4261-01	DATE MODULE (-690)	デートモジュール (-690)	
2078-5145-01	MIRROR CUSION	主ミラークッション	1
9747-1730-07	SCREW	ねじ	5
9747-1745-07	SCREW	ねじ	2

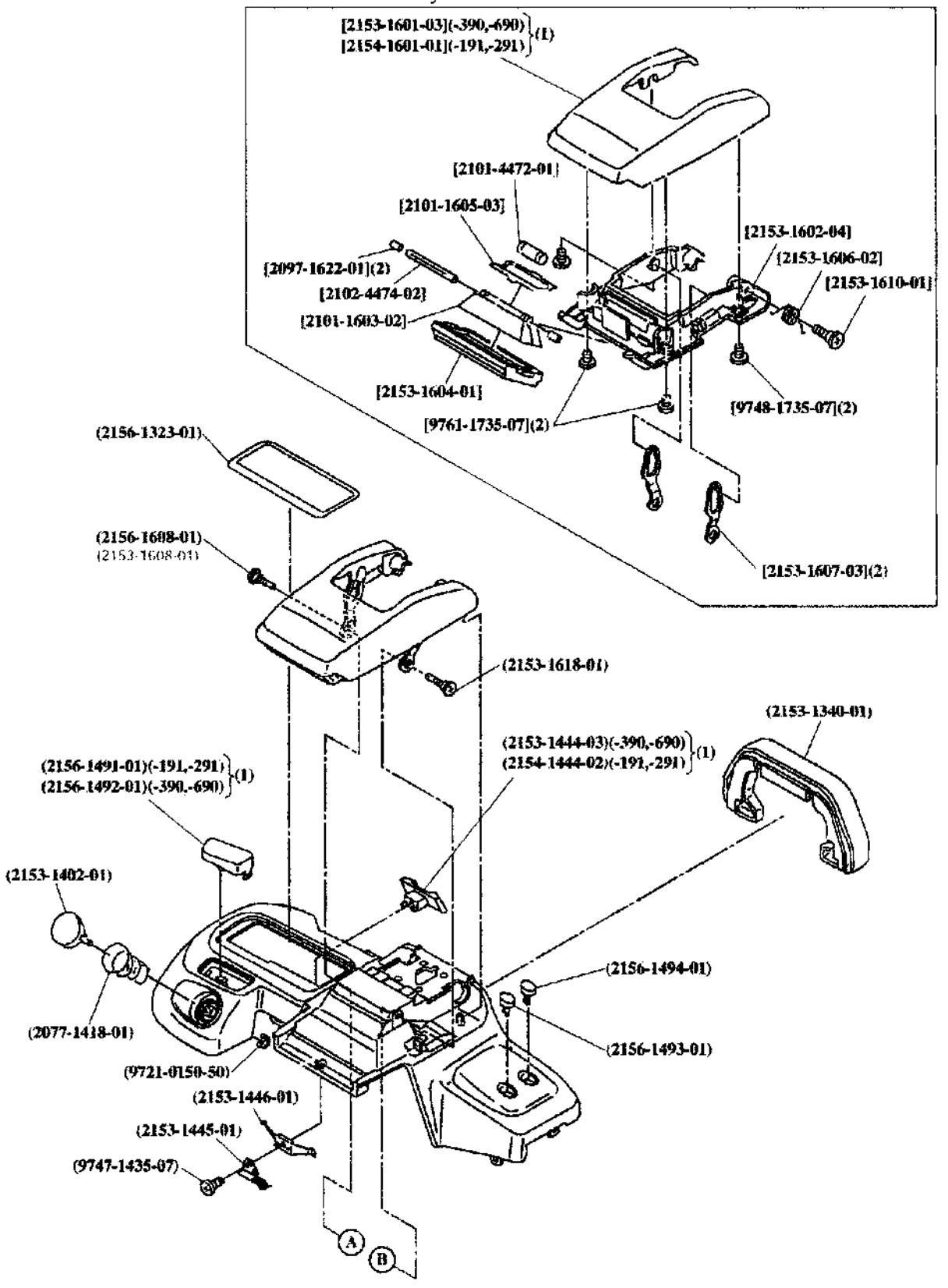
NON DATE MODEL (-191, -390)

PART NO	PART NAME		QTY.
2078-0114-01	PRESSURE PLATE SET	圧着板セット	1
2156-0117-01	BACK COVER ASSY	裏蓋セット	1
(2092-1111-02)	BACK COVER ROLLER	裏蓋可動ローラー	1
2076-1112-02	LIGHT SHIELD SPONGE	パト表示窓遮光片	1
2153-1164-03	LIGHT SHIELD SPONGE-A	遮光片A	1
2078-5145-01	MIRROR CUSION	主ミラークッション	1
9749-1730-07	SCREW	ねじ	2

10(2156)A

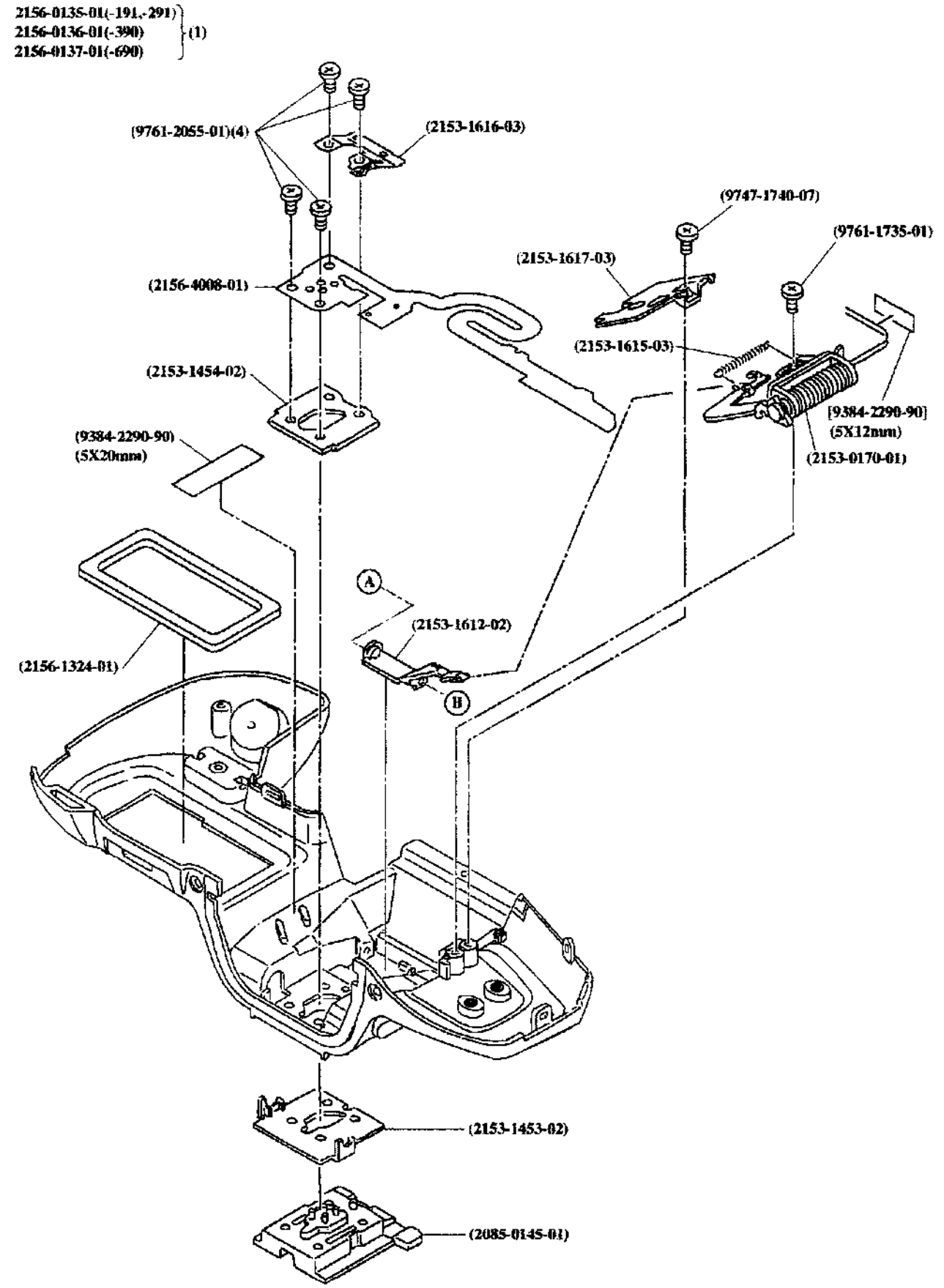
2156-0135-01(-191,-291)
2156-0136-01(-390)
2156-0137-01(-690)
} (1)

(2153-0162-01)(-390,-690)
(2154-0162-01)(-191,-291)
} (1)



PART NO	PART NAME		QTY.
2156-0135-01	TOP COVER ASSY (-191, -291)	上カバーセット (-191, -291)	1
2156-0136-01	TOP COVER ASSY (-390)	上カバーセット (-390)	
2156-0137-01	TOP COVER ASSY (-690)	上カバーセット (-690)	
(2153-0162-01)	FLASH ASSY (-390, -690)	フラッシュセット (-390, -690)	1
(2154-0162-01)	FLASH ASSY (-191, -291)	フラッシュセット (-191, -291)	
[2153-1601-03]	FLASH COVER (-390, -690)	フラッシュカバー (-390, -690)	1
[2154-1601-01]	FLASH COVER (-191, -291)	フラッシュカバー (-191, -291)	
[2153-1602-04]	FLASH BASE PLATE	フラッシュ台板	1
[2101-1603-02]	XE HOLDER-A	ＸＥホルダーＡ	1
[2153-1604-01]	FLASH PANEL	発光パネル	1
[2101-1605-03]	XE HOLDER-B	ＸＥホルダーＢ	1
[2153-1606-02]	POP-UP SP	ポップアップＳＰ	1
[2153-1607-03]	POP-UP STOPPER	ポップアップストッパー	2
[2153-1610-01]	SCREW	ねじ	1
[2097-1622-01]	RUBBER TUBE	ゴムチューブ	2
[2101-4472-01]	TRIGGER COIL	トリガーコイル	1
[2102-4474-02]	XE TUBE	ＸＥチューブ	1
[9748-1735-07]	SCREW	ねじ	2
[9761-1735-07]	SCREW	ねじ	2
(2156-1323-01)	LCD WINDOW TAPE	ＬＣＤ窓テープ	1
(2153-1340-01)	EYEPIECE CUP	アイフード	1
(2153-1402-01)	SHUTTER-RELEASE BUTTON	レリーズ釦	1
(2077-1418-01)	RELEASE BUTTON SPRING	レリーズ釦ＳＰ	1
(2153-1444-03)	MAIN SWITCH (-390, -690)	メインスイッチレバー (-390, -690)	1
(2154-1444-02)	MAIN SWITCH (-191, -291)	メインスイッチレバー (-191, -291)	
(2153-1445-01)	MAIN SWITCH CONTACT	メインスイッチ接片	1
(2153-1446-01)	MAIN SWITCH CLICK PLATE	メインスイッチクリック板	1
(2156-1491-01)	SUBJECT PROGRAM BUTTON (-191, -291)	シーンセレクト釦 (-191, -291)	1
(2156-1492-01)	SUBJECT PROGRAM BUTTON (-390, -690)	シーンセレクト釦 (-390, -690)	
(2156-1493-01)	DRIVE-MODE BUTTON	ドライブ釦	1
(2156-1494-01)	FLASH-MODE BUTTON	フラッシュ釦	1
(2153-1608-01)	POP-UP STOPPER SHAFT	ポップアップストッパー軸	1
(2156-1608-01)	POP-UP STOPPER SHAFT	ポップアップストッパー軸	1
(2153-1618-01)	POSITION ADJUST PIN	係止位置調整ピン	1
(9721-0150-60)	E-RING	Ｅリング	1
(9747-1435-07)	SCREW	ねじ	1

11(2156)A

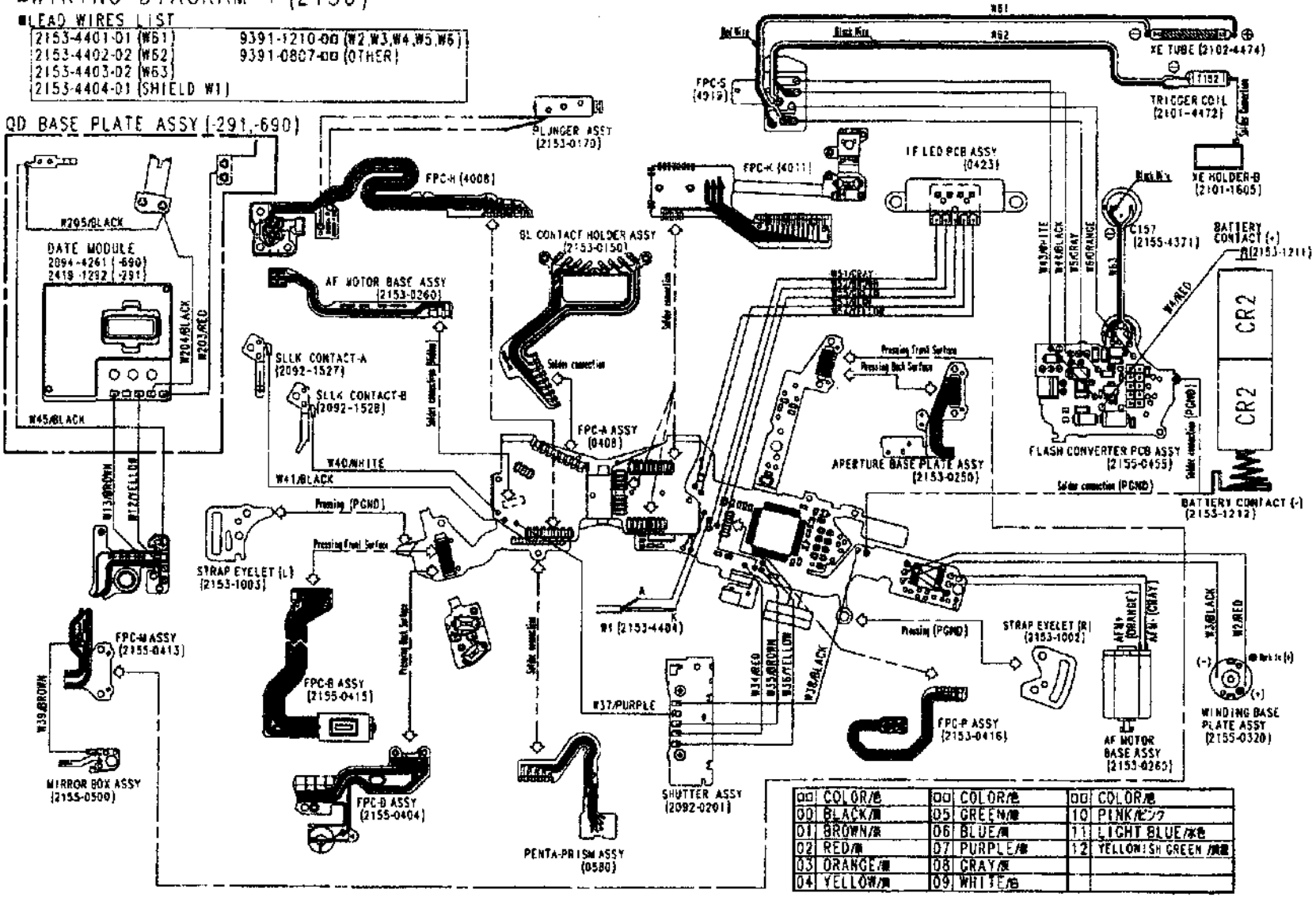

2156-0135-01(-191,-291)
2156-0136-01(-390)
2156-0137-01(-690)
(1)
(9761-2055-01)(4)
(2153-1616-03)
(9747-1740-07)
(9761-1735-01)
(2153-1617-03)
(2156-4008-01)
(2153-1615-03)
(2153-1454-02)
[9384-2290-90]
(5X12mm)
(2153-0170-01)
(9384-2290-90)
(5X20mm)
A
(2153-1612-02)
(2156-1324-01)
B
(2153-1453-02)
(2085-0145-01)

PART NO	PART NAME		QTY.
2156-0135-01	TOP COVER ASSY (-191, -291)	上カバーセット (-191, -291)	1
2156-0136-01	TOP COVER ASSY (-390)	上カバーセット (-390)	
2156-0137-01	TOP COVER ASSY (-690)	上カバーセット (-690)	
(2085-0145-01)	ACC. SHOE SET	アクセサリーシューセット	1
(2153-0170-01)	PLUNGER ASSY	プランジャーセット	1
[9384-2290-90]	POLYESTER TAPE (PER ROLL/60M) YELLOW	ポリエステルテープ	1
(2156-1324-01)	LCD SPONGE	ＬＣＤスポンジ	1
(2153-1453-02)	SHOE BASE	シュー敷板	1
(2153-1454-02)	SHOE HOLDER	シュー取付板	1
(2153-1612-02)	POP-UP LEVER	ポップアップ係止レバー	1
(2153-1615-03)	PLUNGER SP	プランジャーＳＰ	1
(2153-1616-03)	POP-UP DETECT CONTACT	ポップアップ検知接片	1
(2153-1617-03)	PLUNGER PROTECT PLATE	プランジャーガード板	1
(2156-4008-01)	FPC-H	Ｈフレキ	1
(9384-2290-90)	POLYESTER TAPE (PER ROLL/60M) YELLOW	ポリエステルテープ	1
(9747-1740-07)	SCREW	ねじ	1
(9761-1735-01)	SCREW	ねじ	1
(9761-2055-01)	SCREW	ねじ	4

■WIRING DIAGRAM 1 (2156)

■LEAD WIRES LIST

2153-4401-01 (W61)	9391-1210-00 (W2,W3,W4,W5,W6)
2153-4402-02 (W62)	9391-0807-00 (OTHER)
2153-4403-02 (W63)	
2153-4404-01 (SHIELD W1)	



□□	COLOR/色	□□	COLOR/色	□□	COLOR/色
00	BLACK/黒	05	GREEN/緑	10	PINK/ピンク
01	BROWN/茶	06	BLUE/青	11	LIGHT BLUE/水色
02	RED/赤	07	PURPLE/紫	12	YELLOWISH GREEN /黄緑
03	ORANGE/橙	08	GRAY/灰		
04	YELLOW/黄	09	WHITE/白		

管理No. REF No.	QS FA 2156-P001

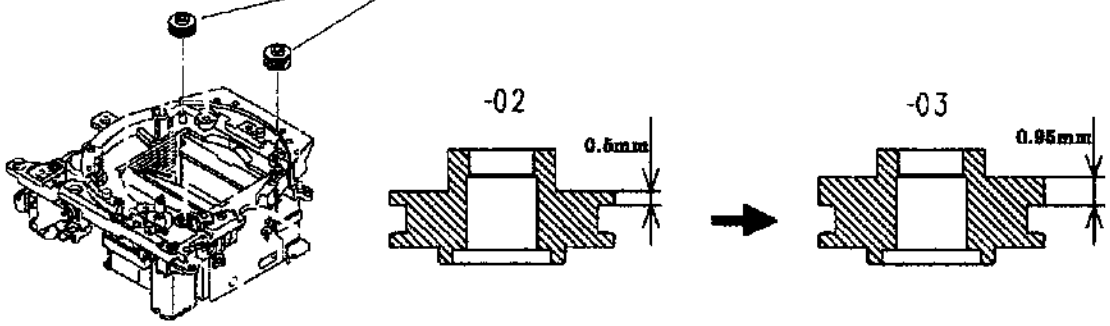
PARTS MODIFICATION LIST

■No. 001 Parts List P. 7 2153-436

変更理由 REASON	絞りリング外れ防止 To prevent Aperture Ring Assy from coming off			共通機種 COMMON MODEL	2156 Series
Previous	(2153-2551-02)	→○	×←	(2153-2551-03)	New

MIRROR BOX ASSY
ミラーボックスセット

2153-2551-02 (2) → 2153-2551-03 (2)

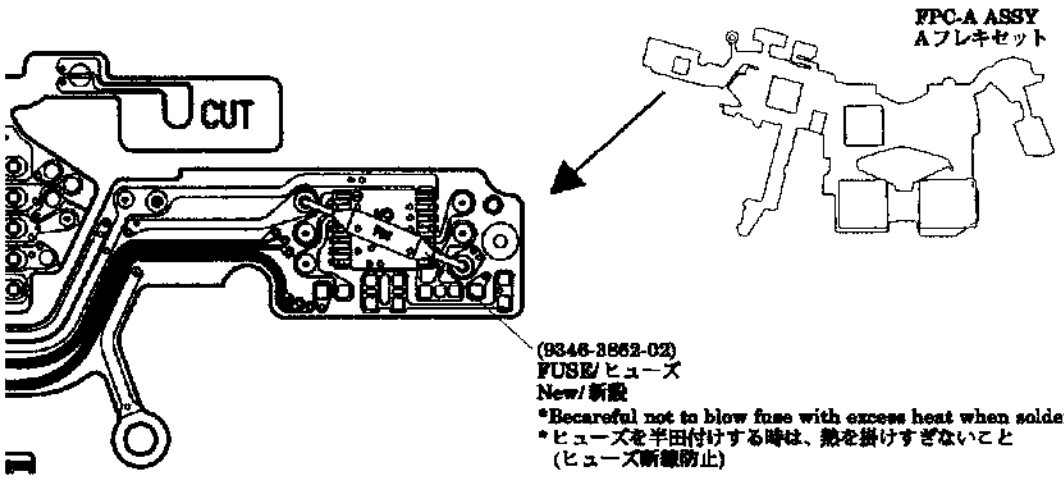


管理No. REF No.	QS FA 2156-P002

PARTS MODIFICATION LIST

■No. 002 Parts List P. 5 仮-697

変更理由 REASON	サービス部品として供給 Added as a service part			共通機種 COMMON MODEL	2156 Series
Previous	————	——	——	(9346-3862-02)	New



(9346-3862-02)
FUSE/ヒューズ
New/新設
*Becareful not to blow fuse with excess heat when soldering.
*ヒューズを半田付けする時は、熱を掛けすぎないこと
(ヒューズ断線防止)

■本案内状に従い、パーツリストへの転記等、メンテナンスを行なってください。
According to this list, correct "Parts List" in Service Manual for effective parts management.

MINOLTA CO.,LTD.

管理No. REF No.	QS FA 2156-P003

PARTS MODIFICATION LIST

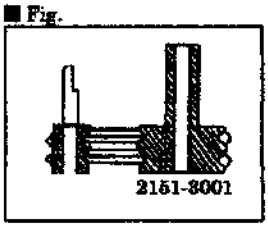
■No. 003 Parts List P. 3 仮-700 SUPPLEMENTARY INFORMATION No. 2092-005

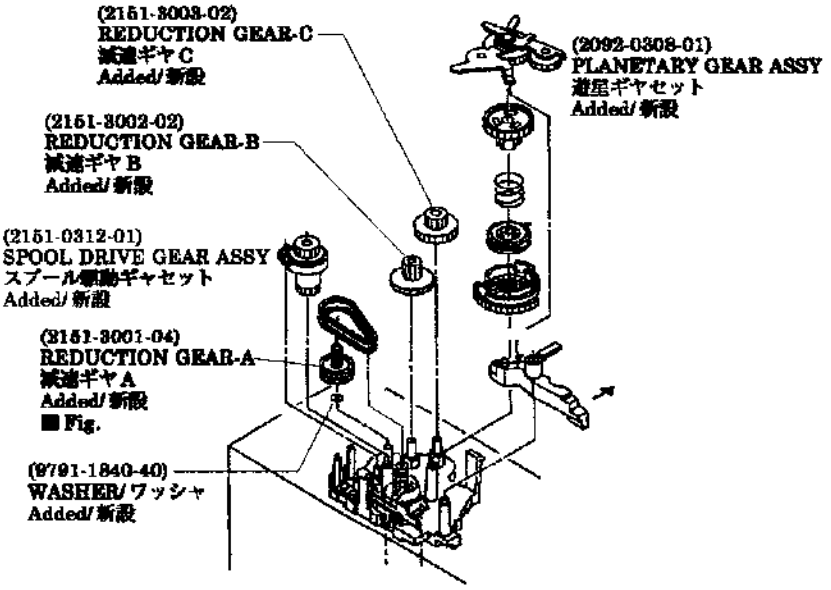
変更理由 REASON	サービス部品として供給 Added as service parts			共通機種 COMMON MODEL	2156 Series
Previous	———	——	——	(2092-0308-01)	New
Previous	———	——	——	(2151-0312-01)	New
Previous		——	——	(2151-3001-04)	New
Previous		——	——	(2151-3002-02)	New
Previous		——	——	(2151-3003-02)	New
Previous		——	——	(9791-1840-40)	New

※ For assembly procedure except for the Fig box, see No. 2092-005, SUPPLEMENTARY INFORMATION.
※ Fig. 以外の組立て要領は、サプリメンタリーインフォメーション No.2092-005 を参照してください。

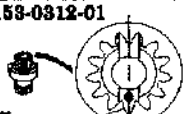
WINDING BASE PLATE ASSY
巻上げ台板セット

■ Fig.





※ Use the parts marked ▭ for #2156.
※ #2156 では ▭ の部品を使用して下さい。

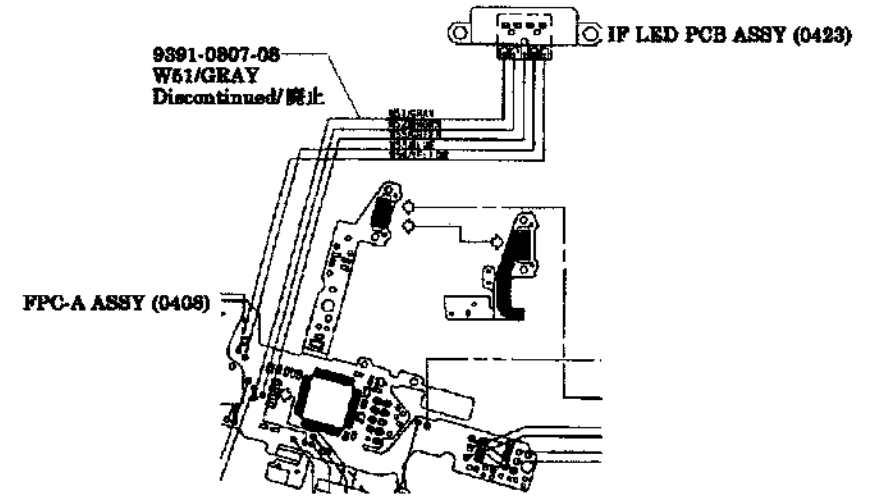
PLANETARY GEAR ASSY 遊星ギヤセット	SPOOL DRIVE GEAR ASSY スプールギヤセット	REDUCTION GEAR-A 減速ギヤA	REDUCTION GEAR-B 減速ギヤB	REDUCTION GEAR-C 減速ギヤC
2092-0308-01		2092-3001-03 色：青 Color:Blue	2092-3002-04 φ 2.3 色：赤 Color:Red 歯数：31 Number of teeth:31	
	2151-0312-01 歯数：14 Number of teeth:14	2151-3001-04 色：黒 Color:Black	2151-3002-02 φ 2.6 歯数：32 Number of teeth:32	2151-3003-02 色：黒 Color:Black 歯数：31 Number of teeth:31
2153-0308-01 穴 Hole	2153-0312-01  歯数：13 Number of teeth:13	2153-3001-01	2153-3002-01 φ 2.3 色：黒 Color:Black 歯数：25 Number of teeth:25	2153-3003-02 色：灰 Color:Gray 歯数：25 Number of teeth:25

管理No. REF No.	QS FA 2156-P004

PARTS MODIFICATION LIST

■No. 004 Parts List P. 12 仮-707

変更理由 REASON	コストダウン To cut cost			共通機種 COMMON MODEL	2156 Series
Previous	9391-0807-08	——	——		New

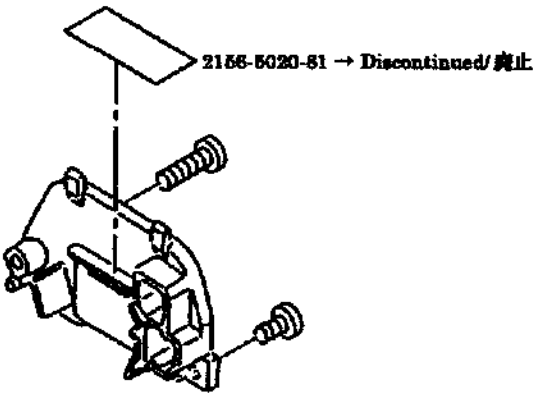


管理No. REF No.	QS FA 2156-P005

PARTS MODIFICATION LIST

■No. 005 Parts List P. 2 仮-708

変更理由 REASON	コストダウン To cut cost			共通機種 COMMON MODEL	2156 Series
Previous	2156-5020-81	——	——		New

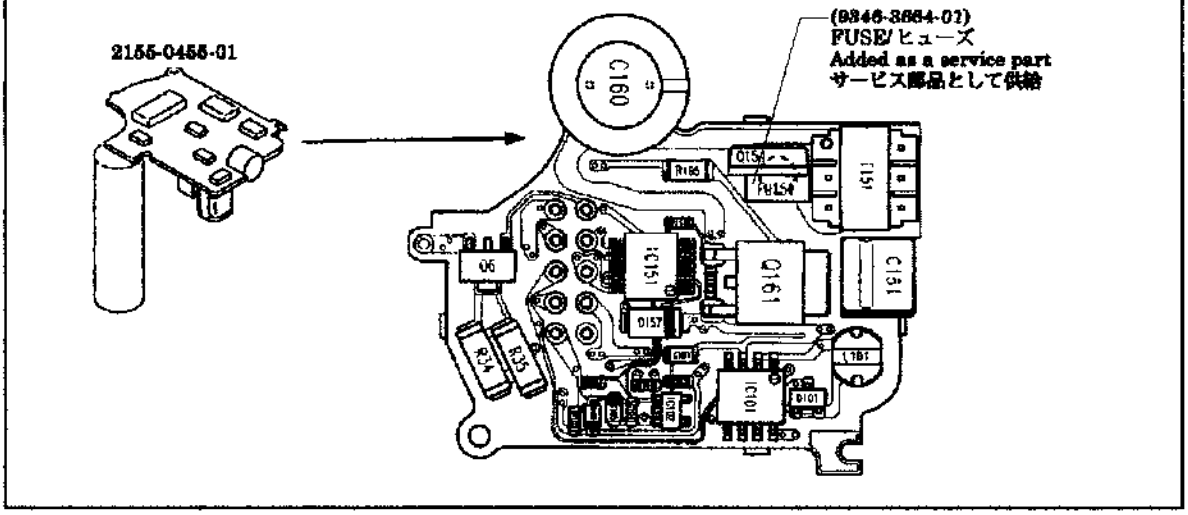


管理No. REF No.	QS FA 2156-P006

PARTS MODIFICATION LIST

■No. 006 Parts List P. 3 仮-705

変更理由 REASON	サービス部品として供給 Added as a service part			共通機種 COMMON MODEL	2156 Series
Previous	2155-0455-01	——	——	2155-0455-01	New
Previous		——	——	(9346-3664-01)	New

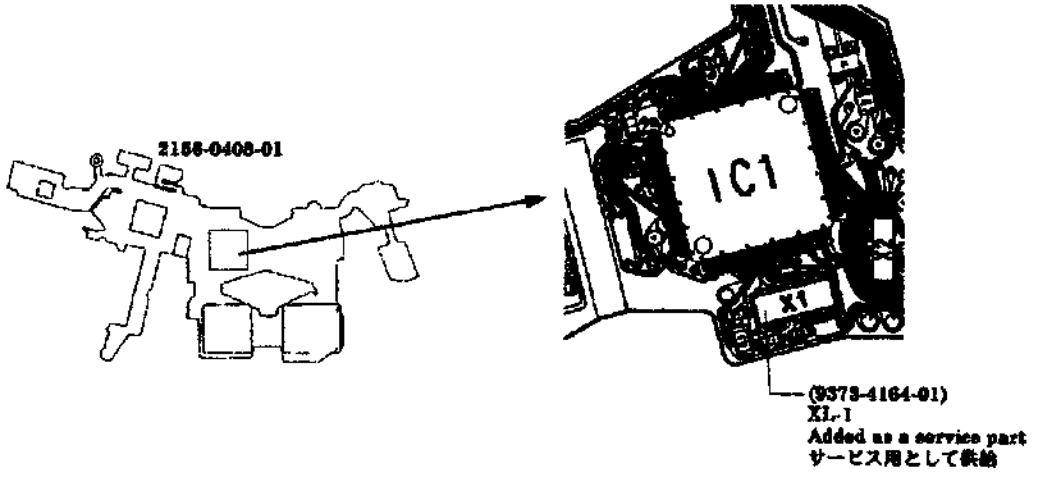


管理No. REF No.	QS FA 2156-P007

PARTS MODIFICATION LIST

■No. 007 Parts List P. 5 仮-710

変更理由 REASON	サービス用部品として供給 Added as a service part			共通機種 COMMON MODEL	2156 Series	
Previous	2156-0408-01	--	--	2156-0408-01		New
Previous	------	--	--	(9373-4164-01)		New

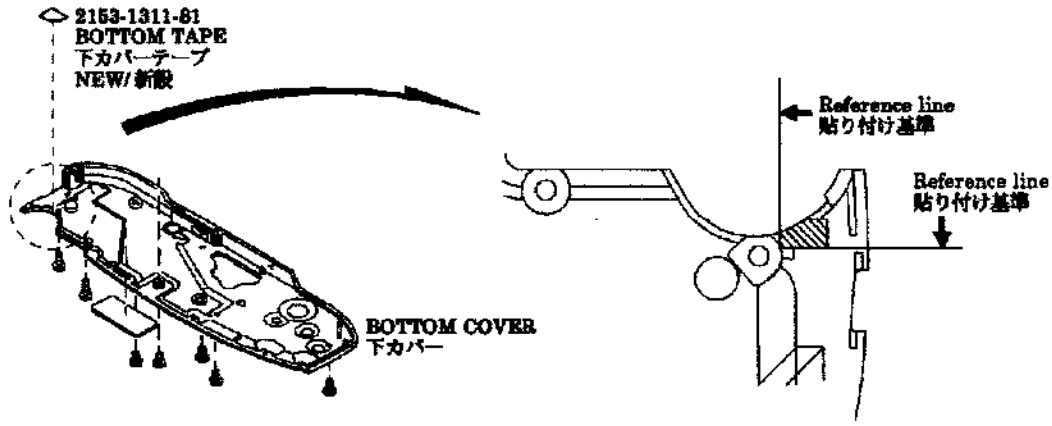


管理No. REF No.	QS FA 2156-P008

PARTS MODIFICATION LIST

■No. 006 Parts List P. 1 2153-512

変更理由 REASON	電池蓋ロック部破損におけるBody救済 To protect body when battery chamber release breaks			共通機種 COMMON MODEL	2156 Series
Previous	-------	---	---	2153-1311-81	New



■本案内状に従い、パーツリストへの転記等、メンテナンスを行なってください。

According to this list, correct "Parts List" in Service Manual for effective parts management.

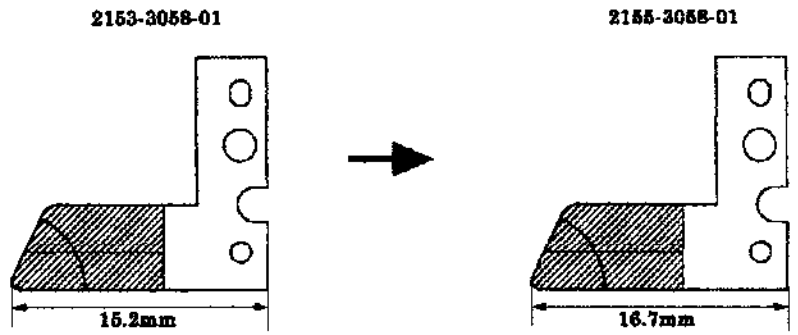
MINOLTA CO.,LTD.

管理No. REF No.	QS FA 2156-P009

PARTS MODIFICATION LIST

■No. 009 Parts List P. 4 53-519, 2154-171

変更理由 REASON	フィルム巻太りの改善 To prevent bulky film winding			共通機種 COMMON MODEL	2156 Series
Previous	2153-3058-01	→○	×←	2155-3058-01	New

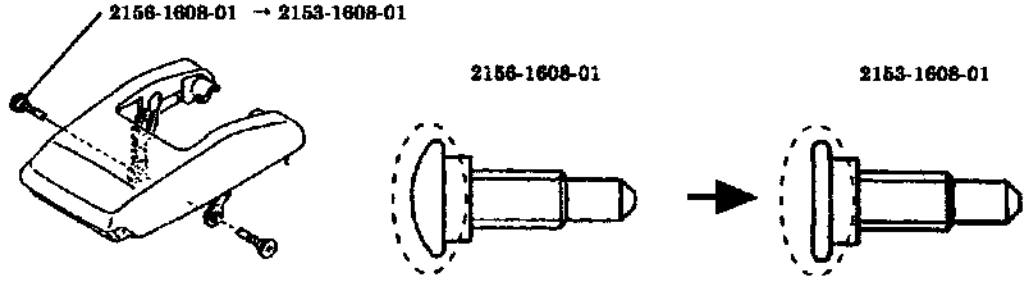


管理No. REF No.	QS FA 2156-P010

PARTS MODIFICATION LIST

■No. 010 Parts List P. 10 2156-104

変更理由 REASON	フラッシュポップアップ時の作動改善 To improve flash pop-up operation.			共通機種 COMMON MODEL	2156 Series
Previous	2156-1608-01	→○	×←	2153-1608-01	New



■本案内状に従い、パーツリストへの転記等、メンテナンスを行なってください。

According to this list, correct "Parts List" in Service Manual for effective parts management.

MINOLTA CO.,LTD.

PARTS MODIFICATION LIST

REF No. 管理No.	QS FA 2156-P011

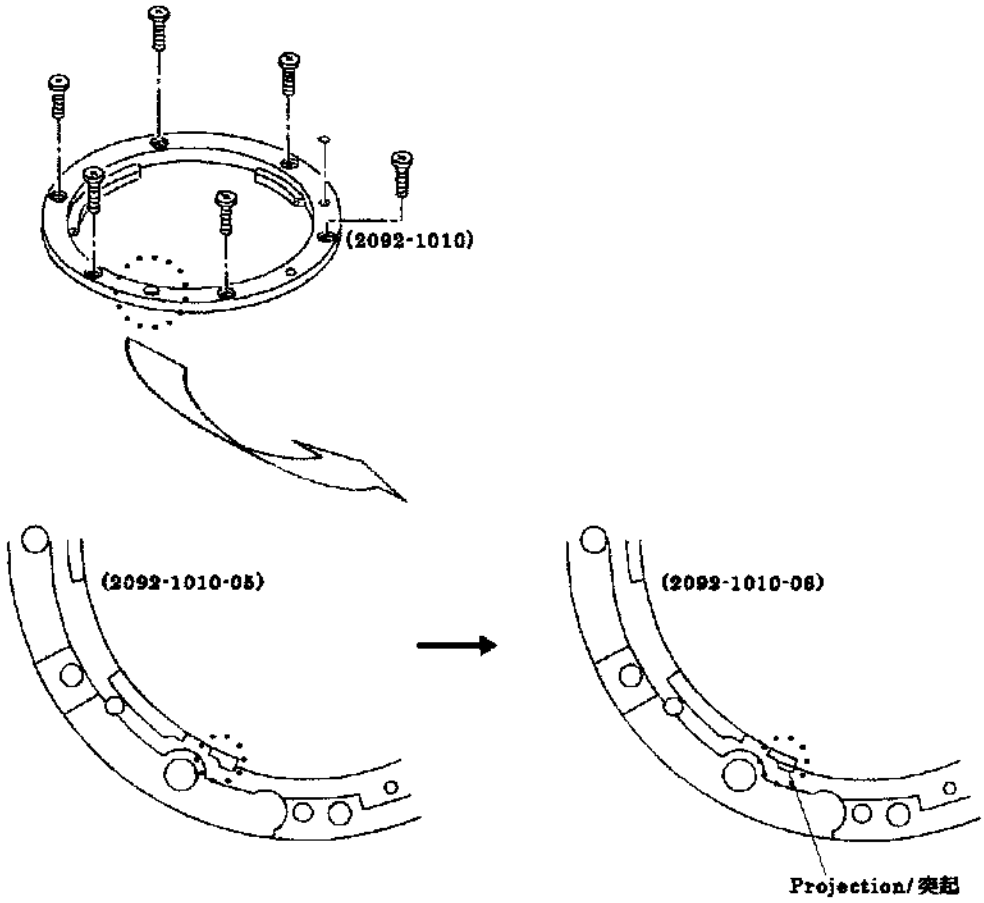
Division 主管部署	Camera CS Division カメラCS部
Valid from 施行年月日	October 31. 2002

Approved by 承認	Verified by 審査	Written by 作成

Parts List P. 7

2092-633

REASON 変更理由	他機種との共通化 For effective parts control			COMMON MODEL 共通機種	2156 Series
Previous	(2092-1010-05)	→○	○←	(2092-1010-06)	New



For 2164, use 2092-1010-06.
製品(2164)には、"2092-1010-06"を使用すること。

■本案内状に従い、パーツリストへの転記等、メンテナンスを行なってください。

According to this list, correct "Parts List" in Service Manual for effective parts management.

MINOLTA CO.,LTD.

PML

Repair Guide

■Contents of this manual are in accordance with the assembly procedure. Therefore, follow the reverse procedure when disassembly.
■Refer to Wiring diagram on Parts List, page 12 for wiring.

■: Cautions and keypoints
G : Grease
S : Adhesive
T : Tool

CONNTENTS Page

■Precautions ---- 2
1 Body Assembly ---- 4
2 Winding Baseplate Assy, Shutter Assy, Mirror Box Assy Installation ---- 6
■Winding Baseplate Installation ---- 7
■Mechanical Operation Check ---- 7
3 FPC-A Assy, FPC-K Assy Installation ---- 8
■Wires Arrangement ---- 9
■External Parts Installation ---- 10
■LCD Holder, FPC-K Assy, FPC-A Assy Assembly ---- 12
■Penta-Prism Assy Installation ---- 13
■Mirror Box Assy Assembly-I ---- 14
■SREL Timing Adjustment ---- 15
■Mirror Box Assy Assembly-II ---- 16
■Top Cover Assy Assembly ---- 18
■Back Cover Assy Assembly ---- 20

CONNTENTS Page

■Adjustments & Checks after repair ---- 21
■Preparation before adjustment-1 (HIT system setup) ---- 23
■Adjustment/Check items available with 2155 ROM Pack ---- 24
■Manual Setting SS & Aperture ---- 25
■Body Back Adjustment-I ---- 26
■Body Back Adjustment-II ---- 27
■Viewfinder Back Adjustment ---- 28
■Manual SS & X-sync. Time-Lag Check ---- 29
■AE Level Check ---- 30
■Aperture Control Check ---- 30
■Flash Level Check using strobe tester ---- 31
■Manual Set SS Adjustment ---- 32
■Aperture Preset Adjustment ---- 33
■AE Check & Adjustment ---- 34
■Flash Level Check & Adjustment ---- 35
■Pre Flash Level Adjustment ---- 36
■Wireless Flash Level Adjustment ---- 37
■B.C. Lock Voltage Adjustment ---- 38
■Preparation before adjustment-2 (AF adjustment) ---- 39
①AF Area Adjustment ---- 40
②Pitch Yaw Adjustment ---- 41
③EZ Adjustment ---- 42
■Assist Mode ---- 43
■LCD Displays Check ---- 43
■Data Copy ---- 44
■Data imprinting intensity adjustment ---- 45
■Error Code on HIT Controller ---- 46
■Tools & Instruments ---- 47
■Subsidiary Materials ---- 47

■ Precautions

■ Chemicals

Handle chemicals of high volatility with care, use of which will affect to your health and environment.

1. Store them sealed in a specific place to prevent exposure to high temperature or direct sunlight.
2. Avoid dividing them into small containers and prevent vaporization.
3. Keep containers sealed when not in use.
4. Avoid using them as much as possible. When required, remove only required amount from the container to make full use.

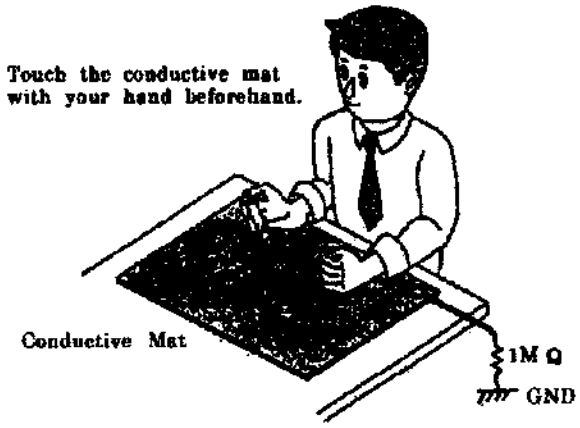
■ Plastic parts

1. When cleaning plastic parts, use cleaning paper or cloth. Never use thinner, ketone, ether.
2. When installing plastic parts, insert the specific screws vertically to the parts. (Be careful not to tighten too much.

■ PCBs

Since PCBs use MOS IC, you must reduce static electricity. When repairing a PCB itself, or when wiring, please perform your work as illustrated below.

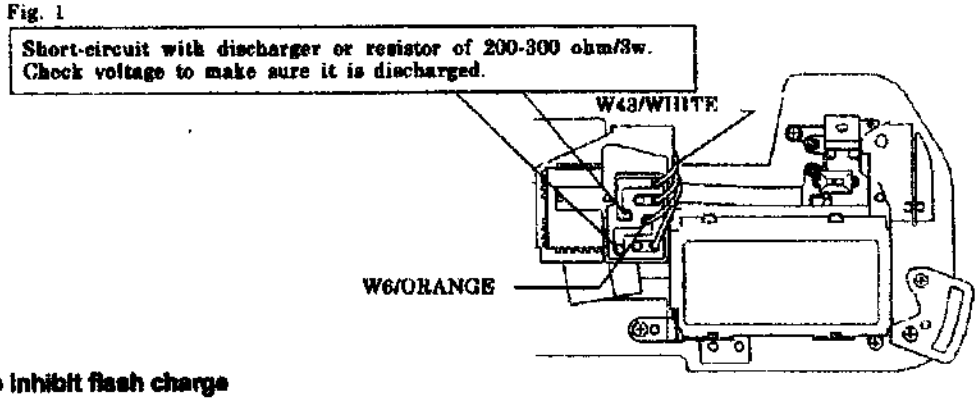
If grounding is impossible, connect a cable to a steel desk or shelf.



■Discharge

Before disassembly, be sure to discharge the main condenser in the following manner. (Fig. 1)

■ Fig. 1


Short-circuit with discharger or resistor of 200-300 ohm/3w.
Check voltage to make sure it is discharged.
W43/WHITE
W6/ORANGE

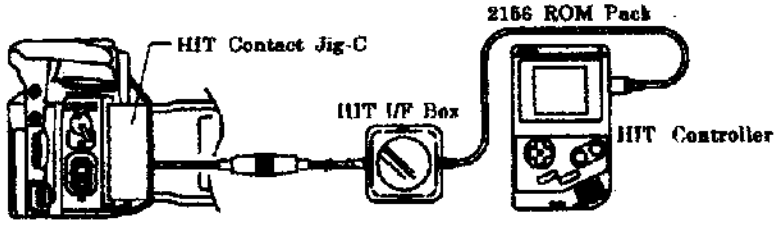
■To inhibit flash charge

Be sure to make flash charge available after repair.

1. Setup the camera as Fig. 2.
2. Select "ASSIST MODE" from main menu and press SELECT Button.
3. Select "FLASH CHARGE ON/OFF" from assist mode menu and press SELECT Button.
4. Press Shutter-Release Button partway down.
5. Press Button-A or -B to select flash charge on/off. And press SELECT Button.
   Button-A: ON (flash charge available)
   Button-B: OFF (flash charge inhibited)
6. Press Shutter-Release Button partway down. HIT Controller beeps.
7. Re-install Battery.

Select "MENU" and press SELECT Button to return to the assist mode menu.

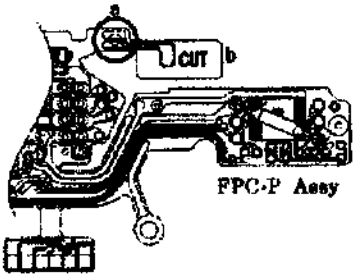
■ Fig. 2



■To activate without Top Cover (Fig. 3)

·Short-circuit the pattern –a of FPC-A Assy with solder.
·When using replacement FPC-A, no need to short these patterns because it has pattern-b.
*Before installing Top Cover, be sure to unsolder the pattern-a or to cut the pattern-b.

■ Fig. 3



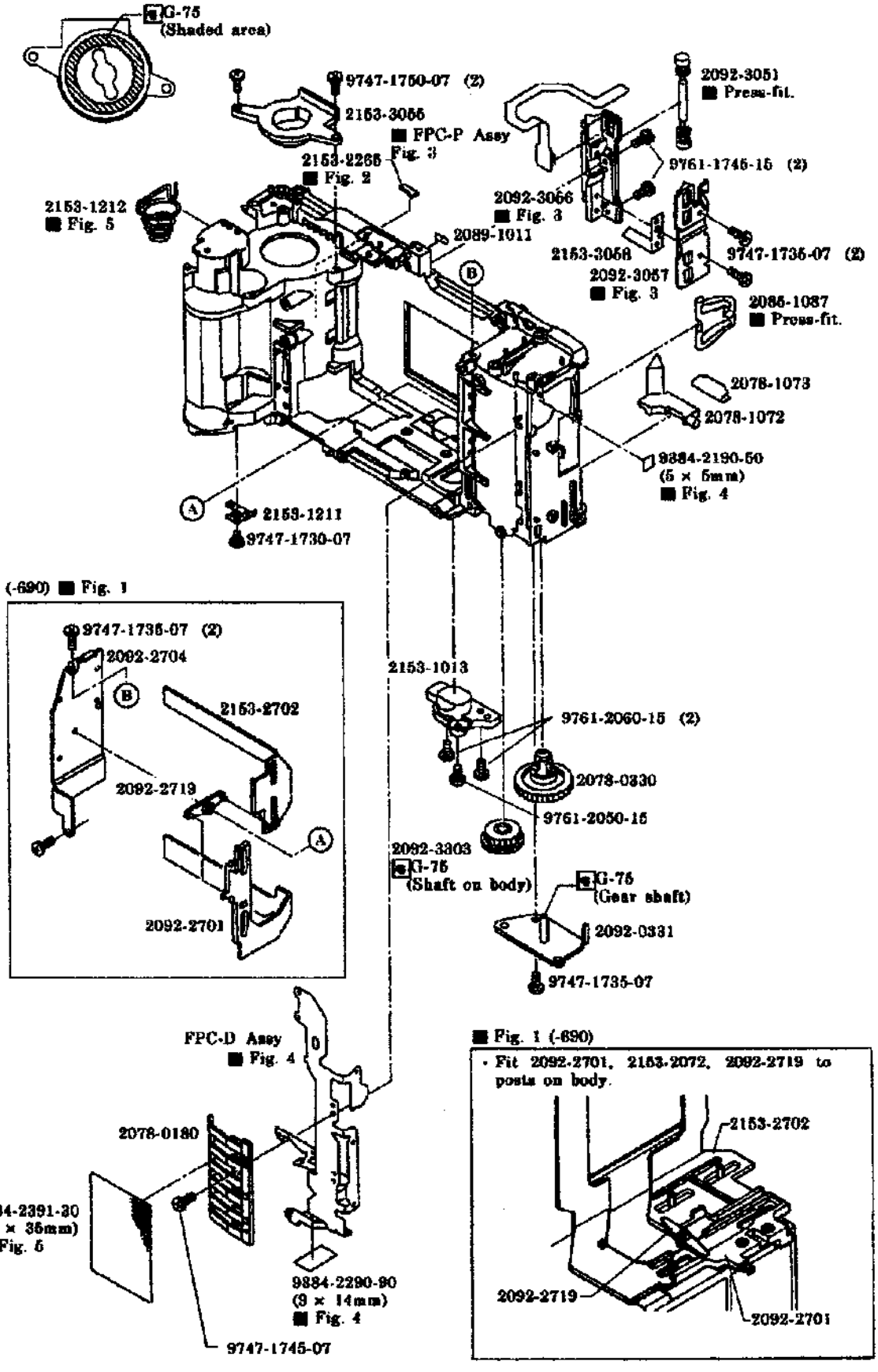
■Replacing FPC-A Assy #0408

Initial setting after FPC-A Assy replacement is:

·Flash charge inhibited
·F—shutter lock canceled
·Erratic display in Data Panel.
*Battery installation after Flash level Adjustment (P. 84) will reset these settings.

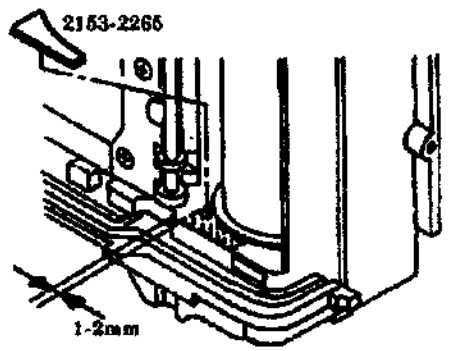
4 A(2156)

1 Body Assembly



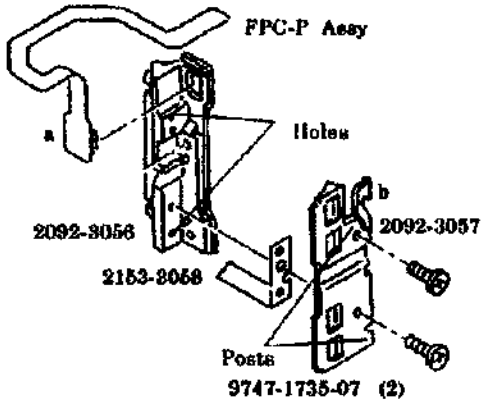
■ Fig. 2

· Fit 2153-2265 to shaded area.



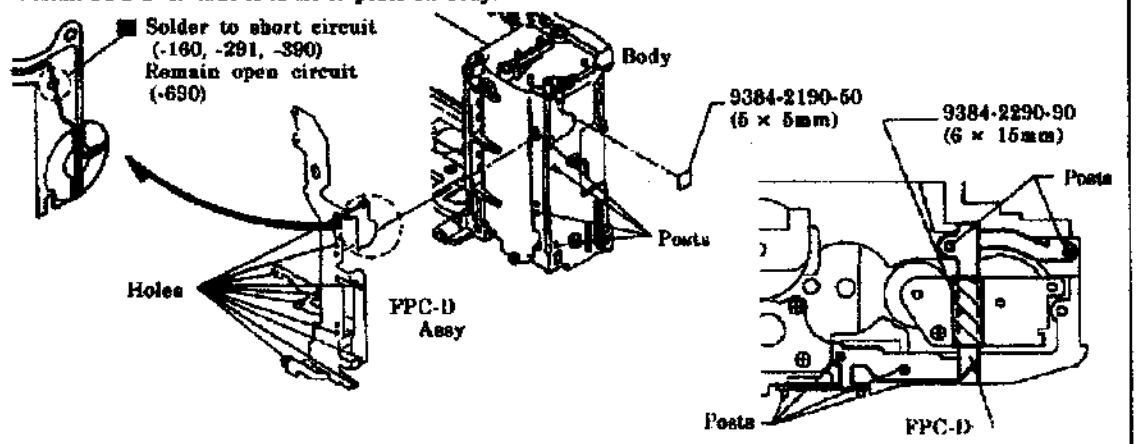
■ Fig. 3

· Assemble 2092-3056 and FPC-P Assy. Then hold "a" with "b" so that 2092-3056 and 2092-3057 are engaged.



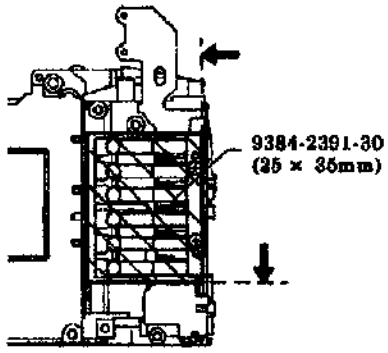
■ Fig. 4

· Install FPC-D so that it is fit to posts on body.



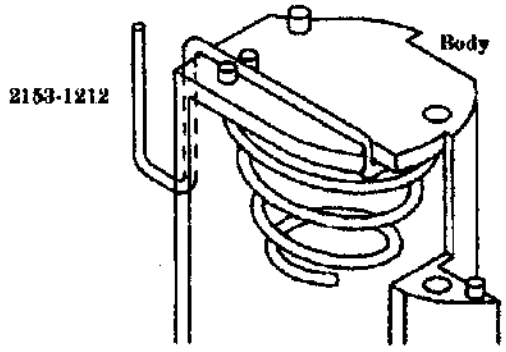
■ Fig. 5

· Install 9384-2391-30 to shaded area.



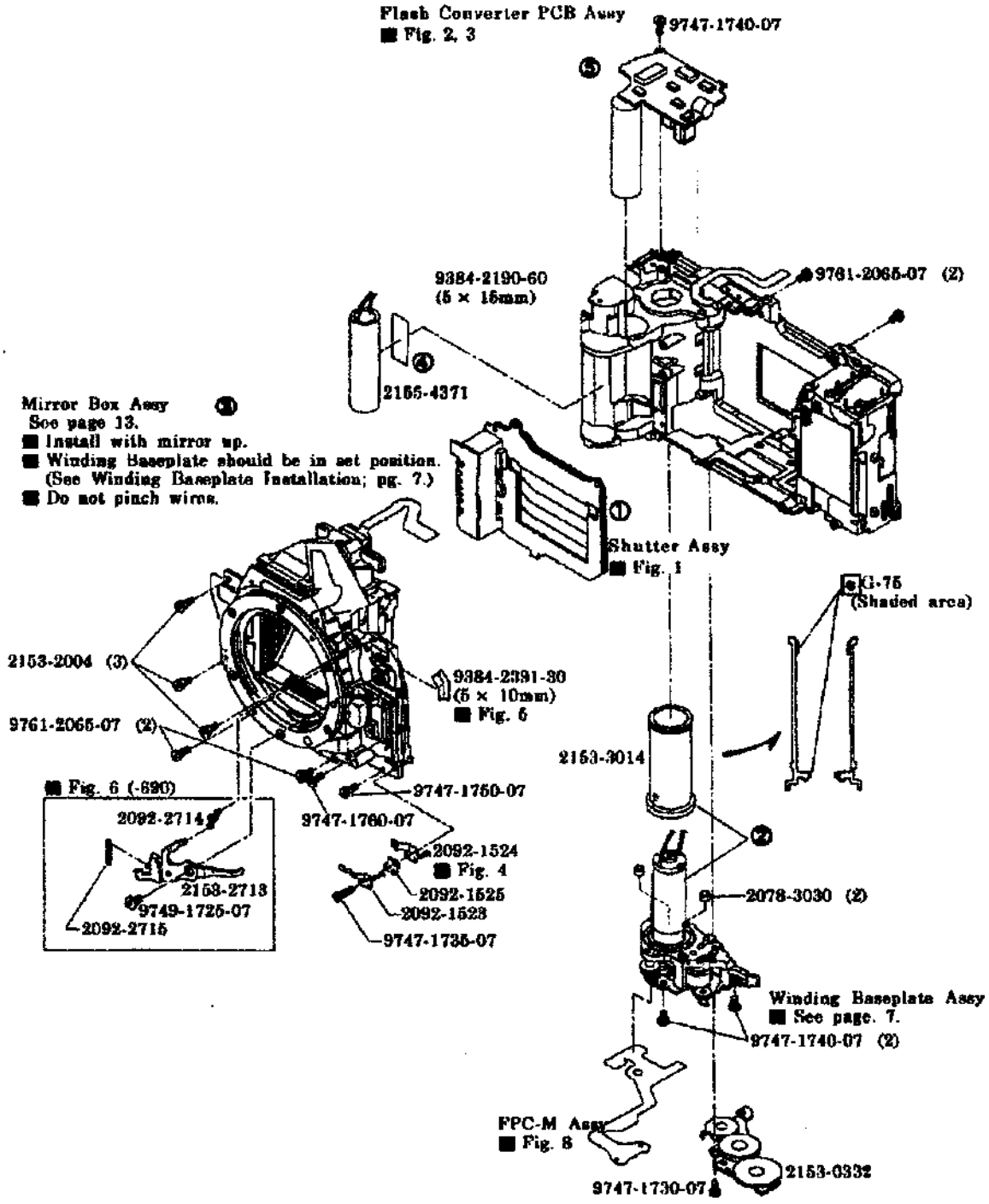
■ Fig. 6

· Hook 2153-1212 to body as shown.



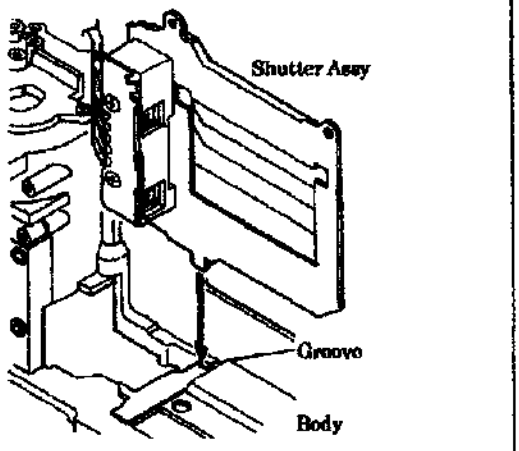
2 Winding Baseplate Assy, Shutter Assy, Mirror Box Assy Installation

■After assembly, perform Operation Check (pg. 7).
■Install in the order from ① to ⑤.



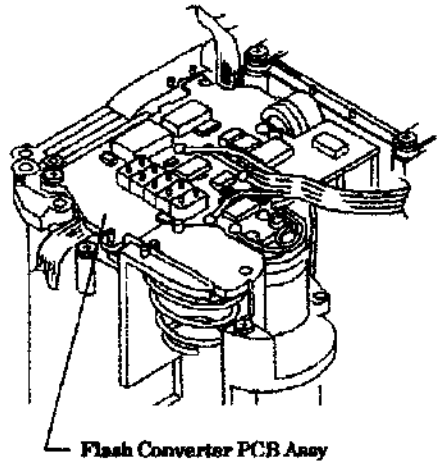
■Fig. 1

·Install Shutter Assy to the groove of body.



■Fig. 2

·Wires arrangement



■Fig. 3■

·Wires arrangement

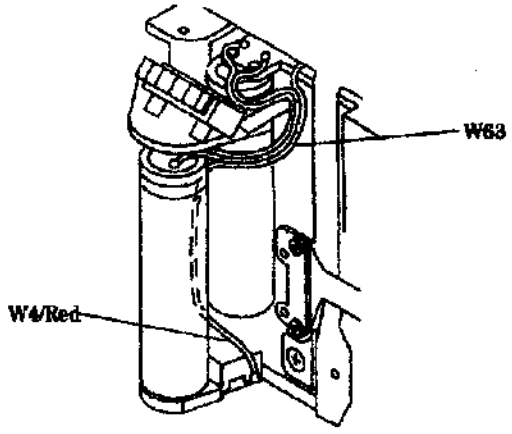
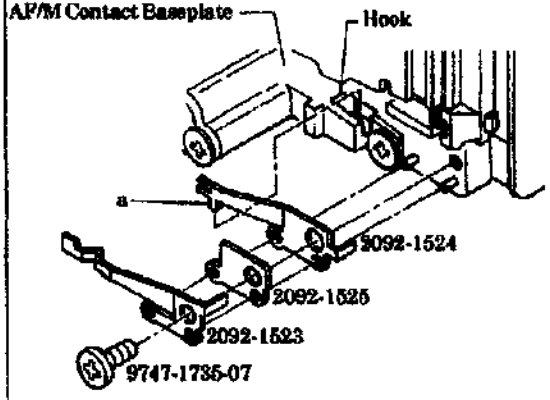


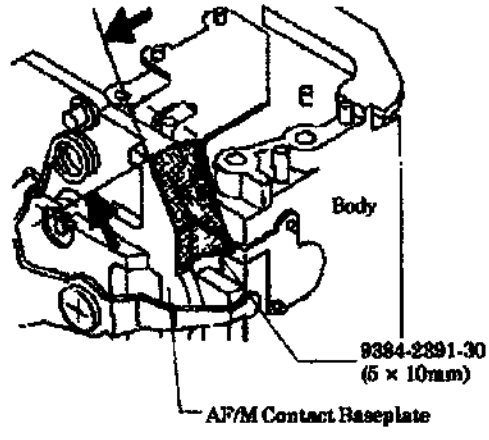
Fig. 4

·Hook 2092-1524 "a" to AF/M Contact Baseplate.



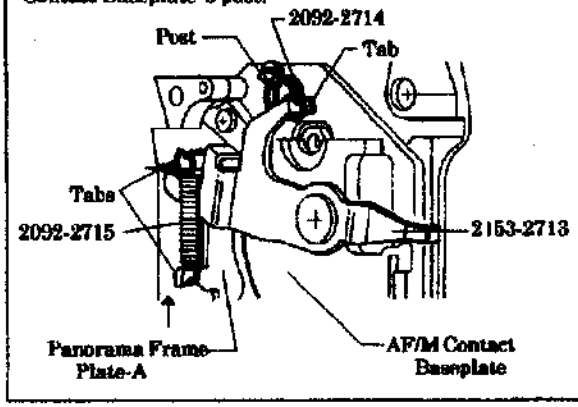
■Fig. 5

·Affix 9384-2391-30.



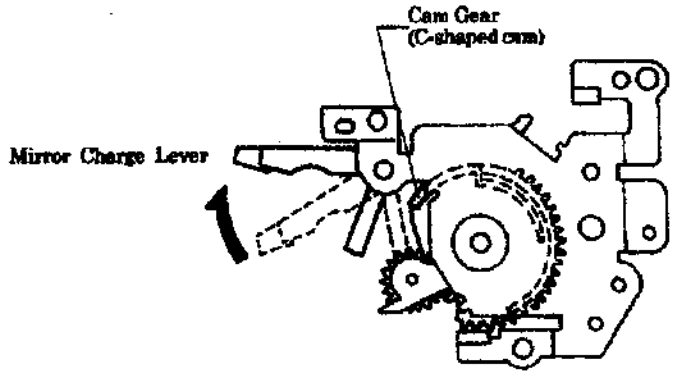
■Fig. 6 (-890)

·Holding Panorama Frame Plate-A in arrow direction, hook each end of 2092-2715 to Panorama Frame Plate-A and 2153-2713 as shown.
·Hook each end of 2092-2714 to 2153-2713's tab and AF/M Contact Baseplate's post.



Winding Baseplate Installation

1. Turn Cam gear until it stops in position in the figure.
2. Check that the Mirror Charge Lever is in position of the arrow.
   Install Aperture Baseplate Assy to Body.



Mechanical Operation Check

1. Insert Motor Axis Spanner to the hole-d. Turn it clockwise and counterclockwise to confirm operation (Fig. 1).
   Clockwise: Spool operation starts.
   Counterclockwise: Mechanical charge and release
2. If Aperture Ring Assy doesn't operate smoothly, adjust with screw #9762-1745-07. (Fig. 2)

Fig. 1

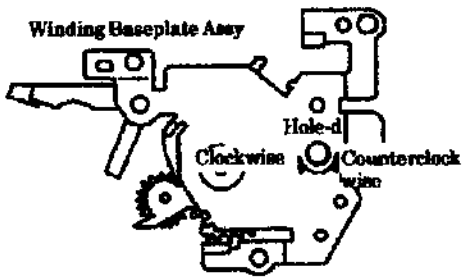
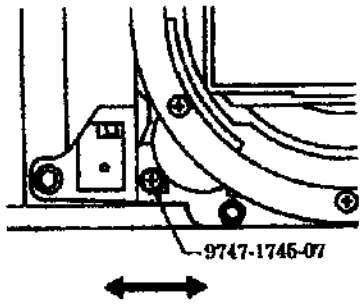
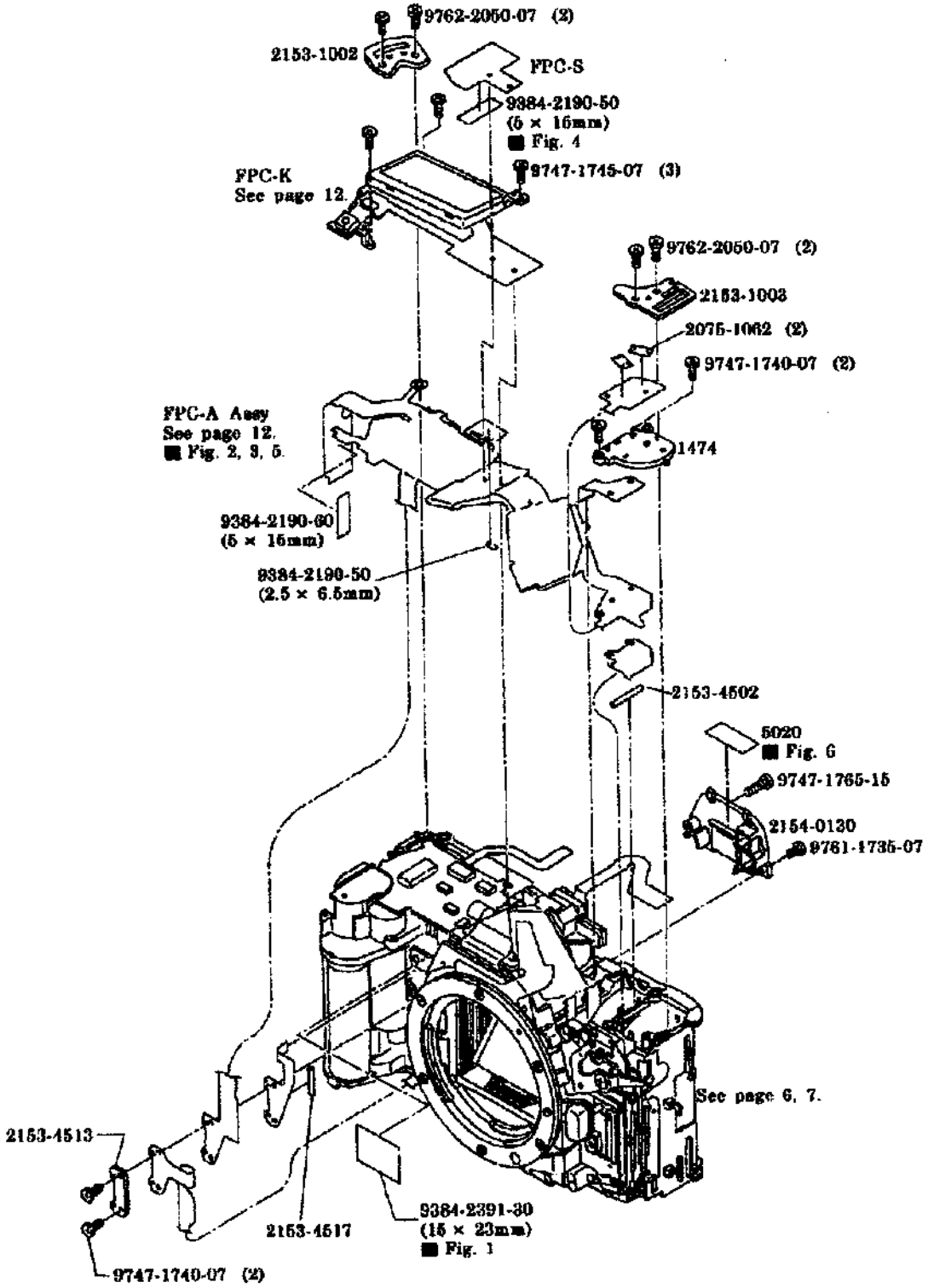


Fig. 2



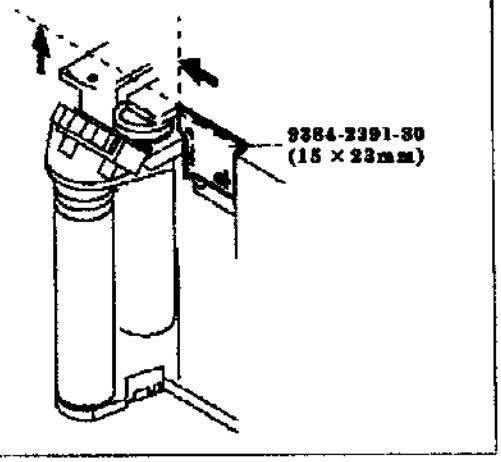
3 FPC-A Assy, FPC-K Installation

■See wires arrangement (pg. 9).



■Fig. 1

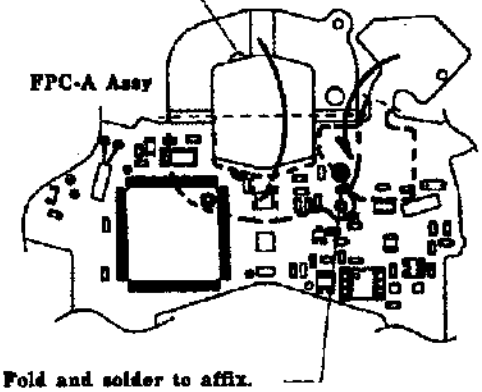
・Affix 9384-2391-30 in position.



■Fig. 2

・Fold FPC-A at broken lines, then solder.

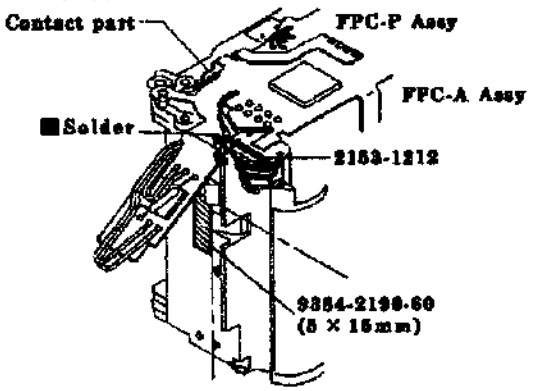
■Fold and solder to affix.



■Fold and solder to affix.

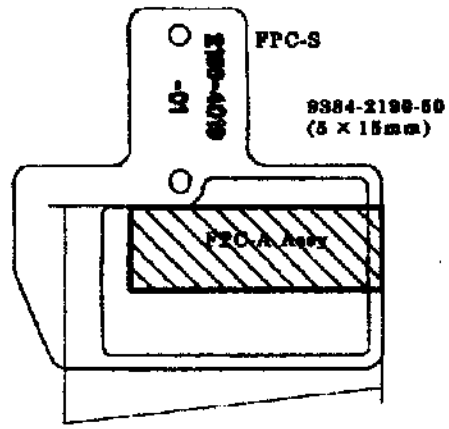
■Fig. 3

①Insert contact part of FPC-A Assy to the slit.
②Arrange wires as shown, then solder FPC-A Assy to install.



■Fig. 4

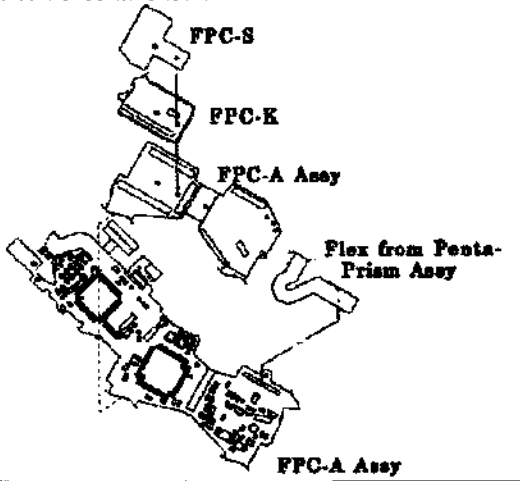
・Install 9384-2190-50 in shaded area.



■Guide line

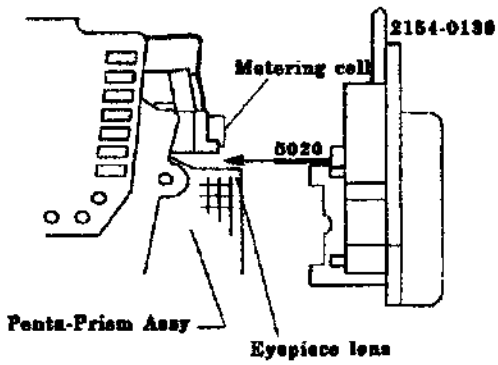
■Fig. 5

・Pile flexes as shown.

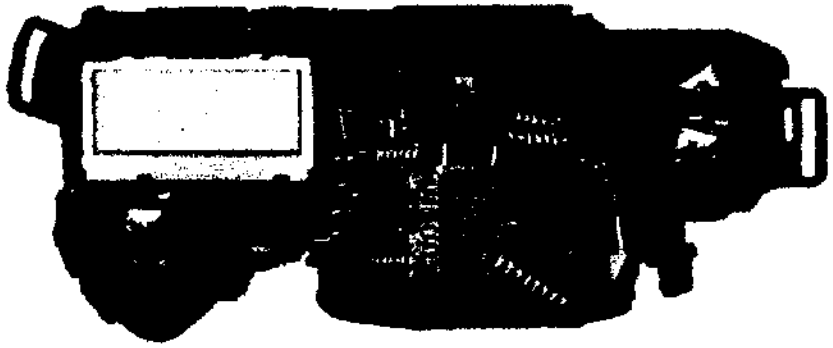


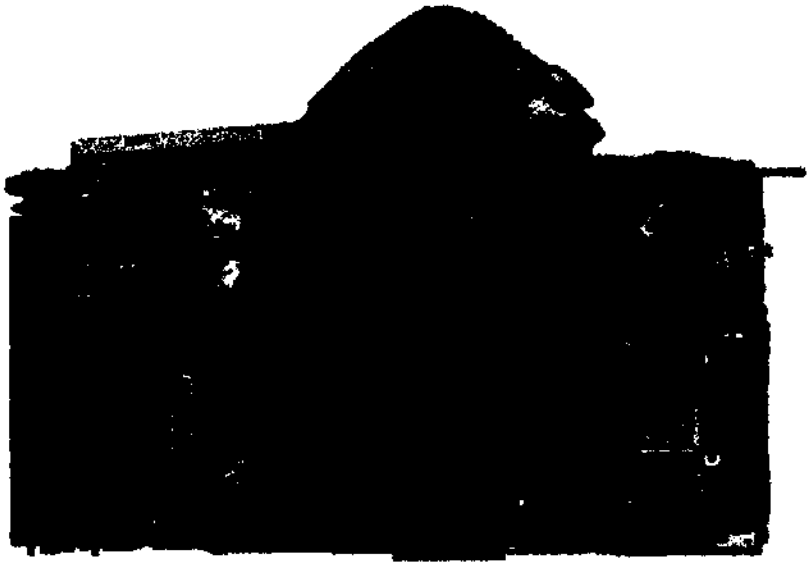
■Fig. 6

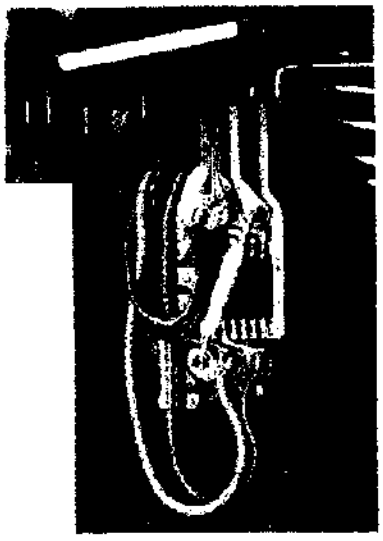
・Install 2154-0138 so that 5020 is inserted between Metering cell and Eyepiece lens.



Wires Arrangement

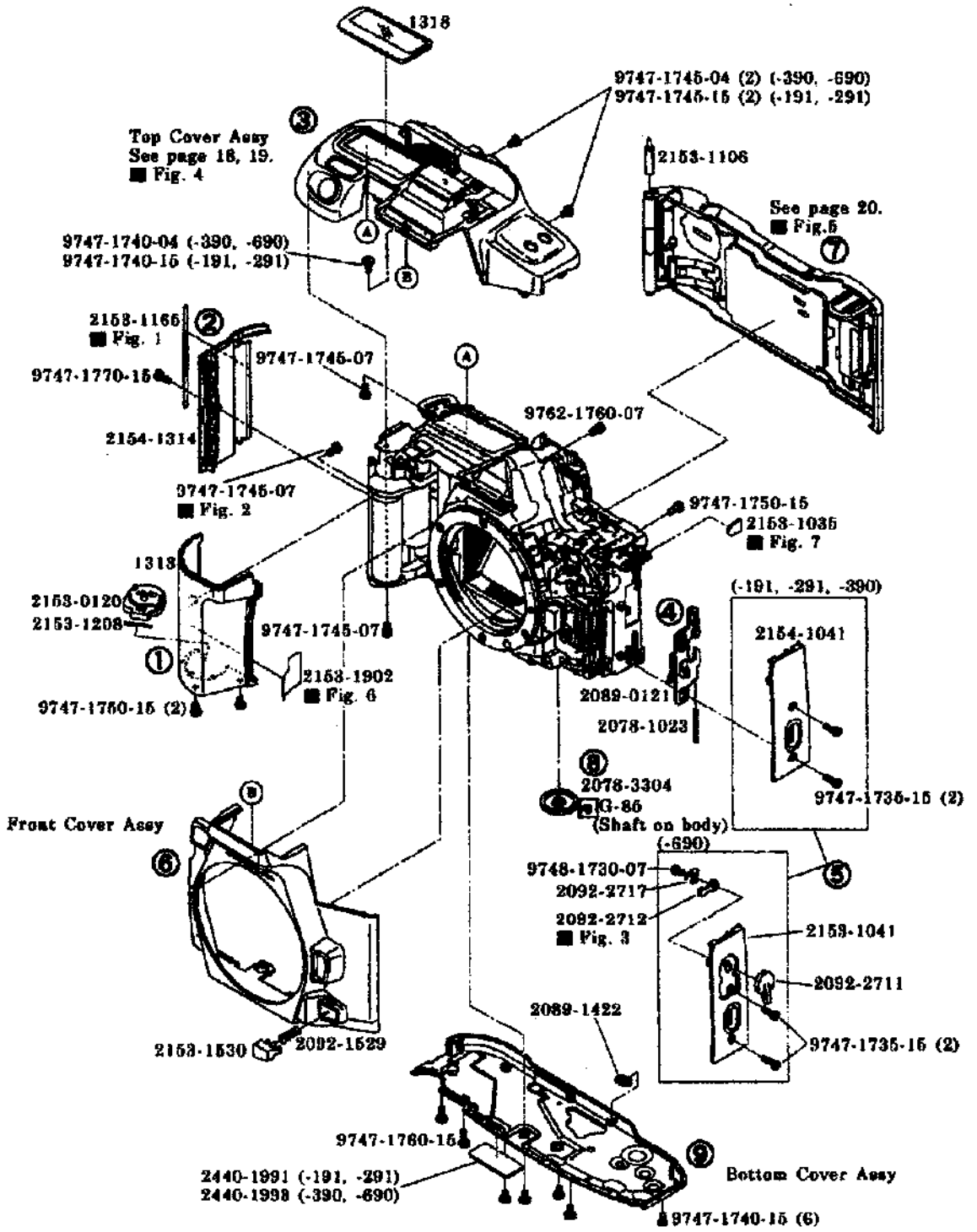






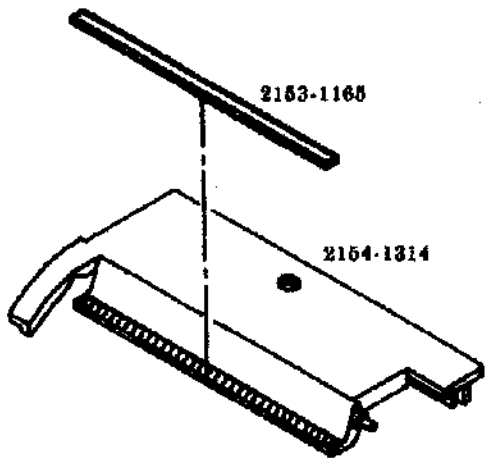
External Parts Installation

■Install in the order from ① to ⑨.
■Be sure to discharge condenser before disassembly (See pg. 3).
■Remove solder or cut off pattern-b of FPC-A Assy. (See pg. 3).



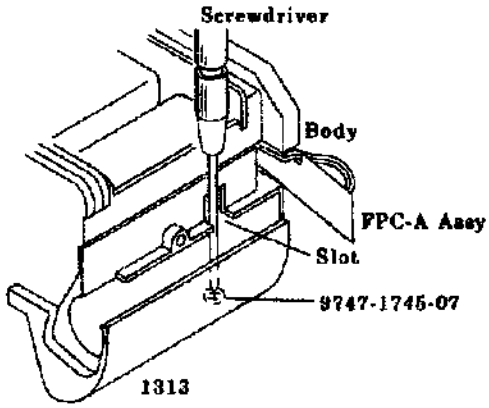
■ Fig. 1

· Install 2153-1165 to shaded area.



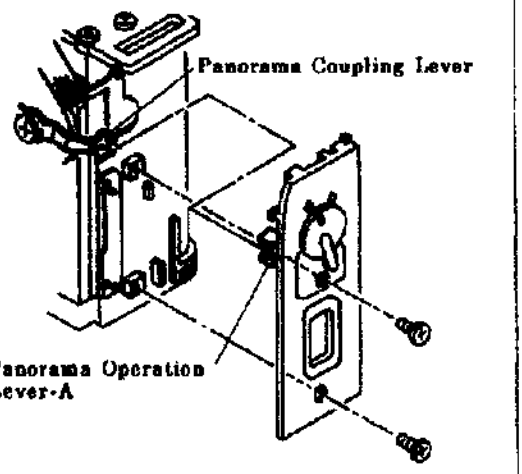
■ Fig. 2

· Holding FPC-A Assy upward, insert a screwdriver to body slot to fasten screw.



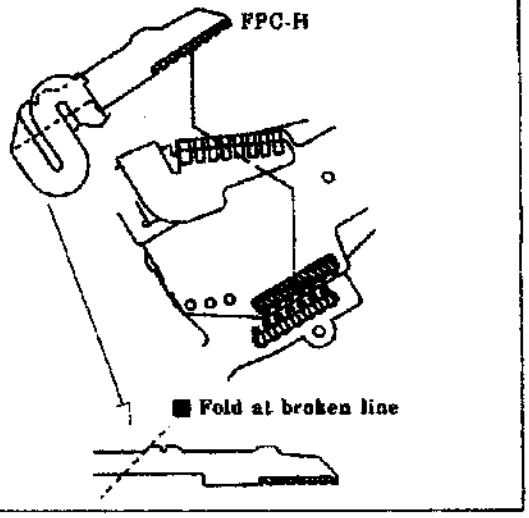
■ Fig. 3

· Fit Panorama Coupling Lever and Panorama Operation Lever-A.



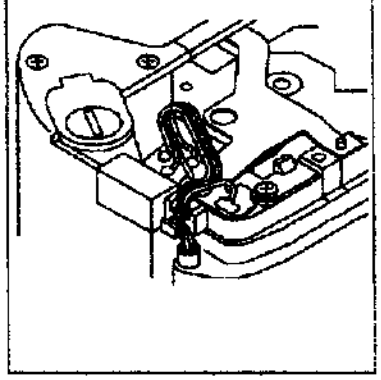
■ Fig. 4

· Solder to connect FPC-H to FPC-A Assy.



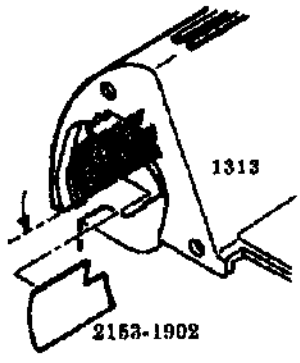
■ Fig. 5

· Wires arrangement.



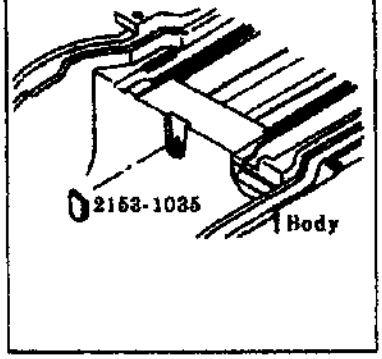
■ Fig. 6

· Affix 2153-1902 to shaded area.

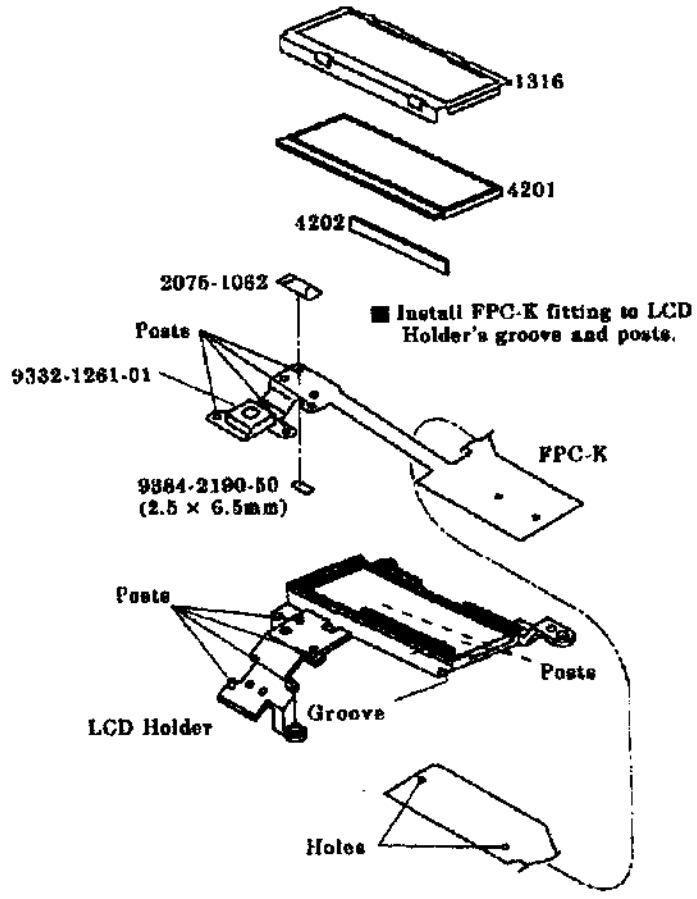


■ Fig. 7

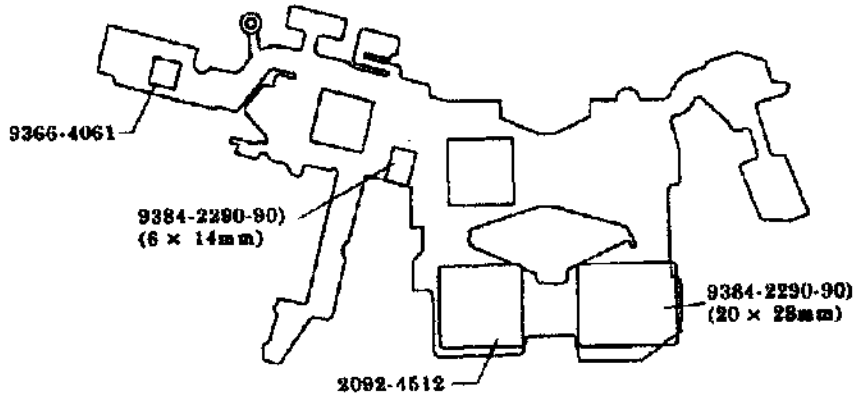
· Affix 2153-1035 to body.



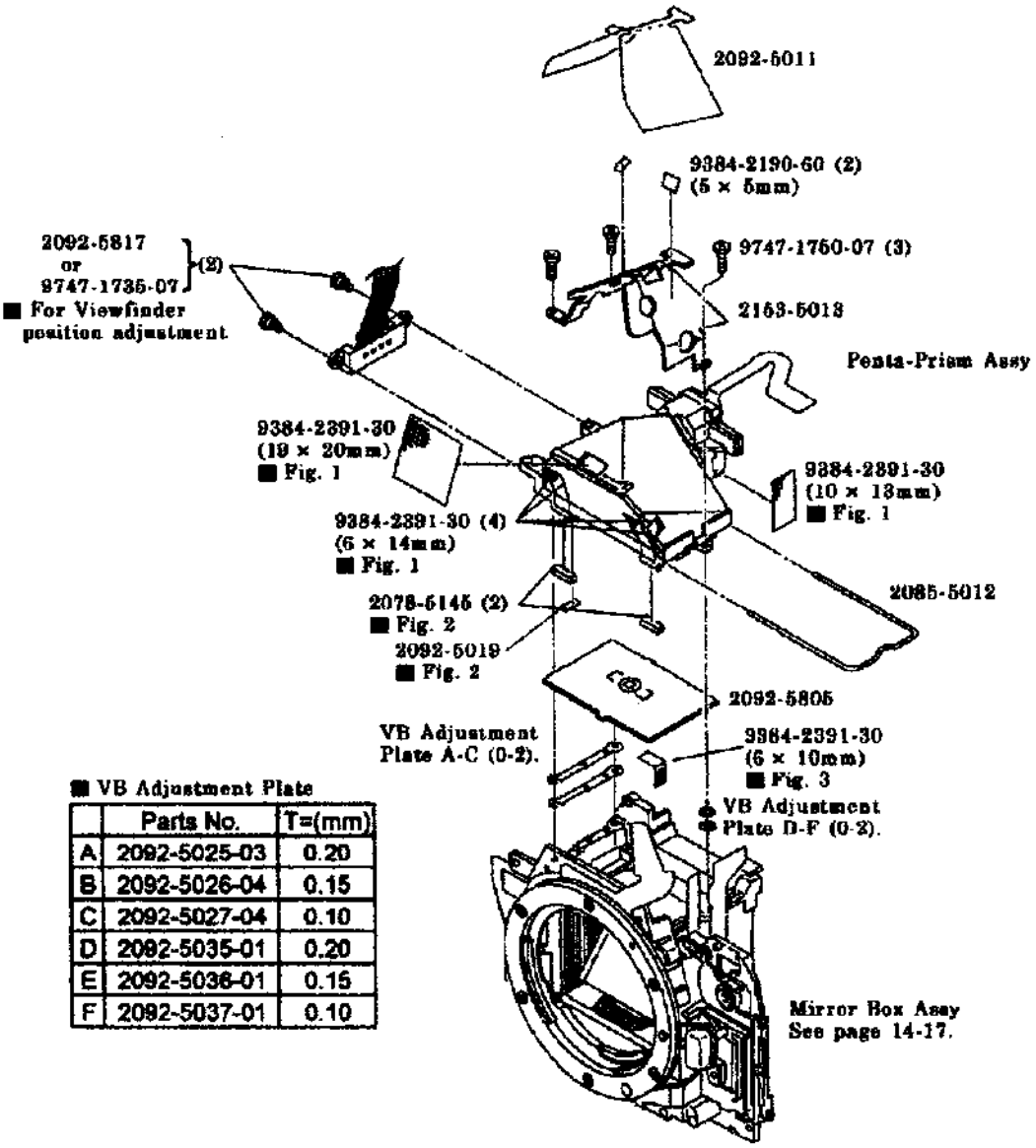
LCD Holder, FPC-K, FPC-A Assy Assembly



FPC-A Assy



Penta-Prism Assy Installation

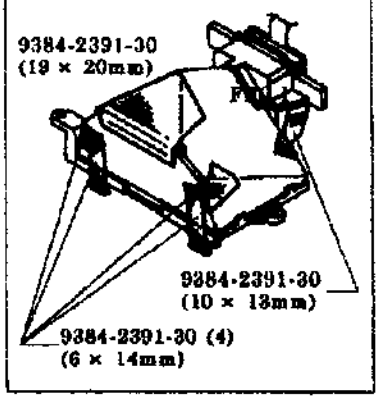


■ VB Adjustment Plate

	Parts No.	T=(mm)
A	2092-5025-03	0.20
B	2092-5026-04	0.15
C	2092-5027-04	0.10
D	2092-5035-01	0.20
E	2092-5036-01	0.15
F	2092-5037-01	0.10

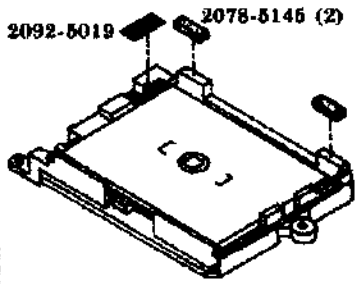
■ Fig. 1

· Install 9384-2391-30 in position.



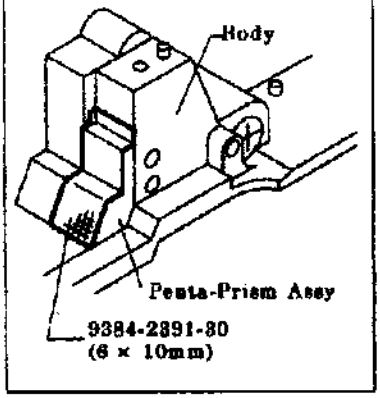
■ Fig. 2

· Install 2092-5019 (shaded area) and 2078-5145 to Penta-Prism Assy in position.



■ Fig. 3

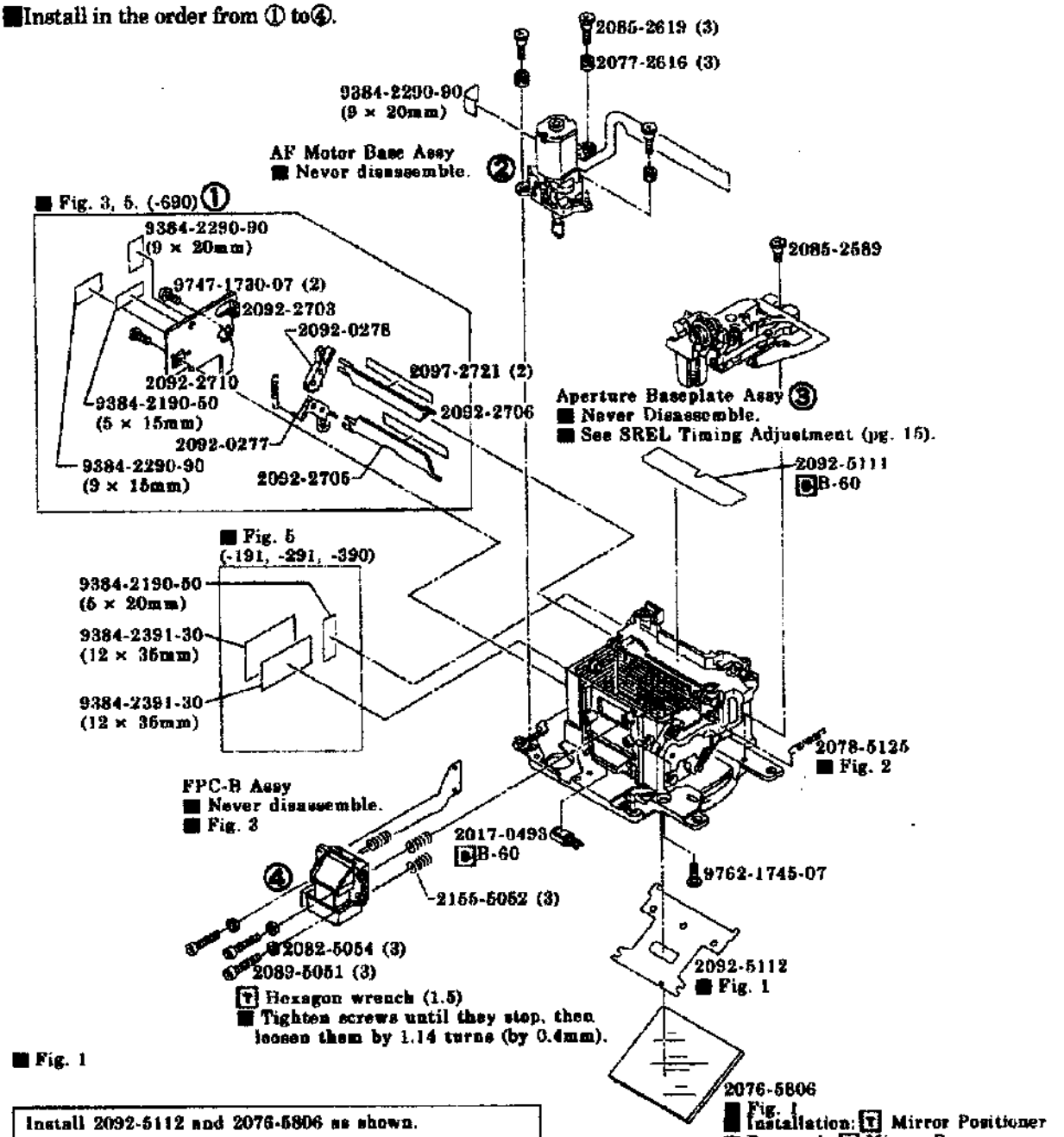
· Install 9384-2391-30 as shown.



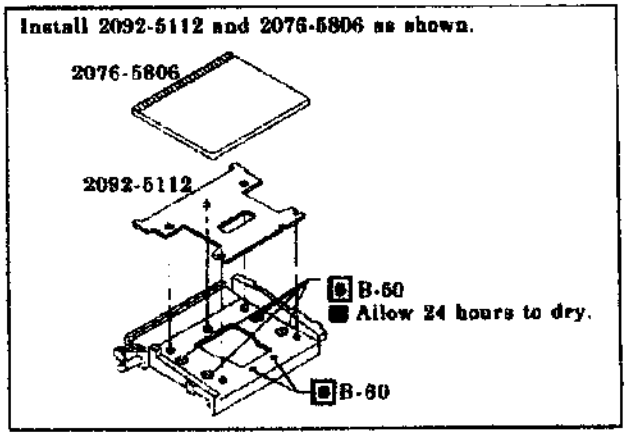
REPAIR GUIDE

Mirror Box Assy Assembly-I

■Install in the order from ① to④.

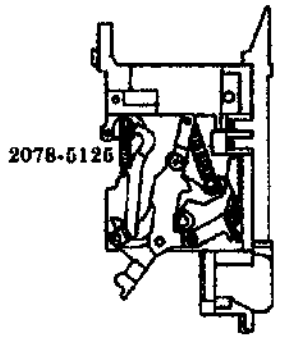


■ Fig. 1



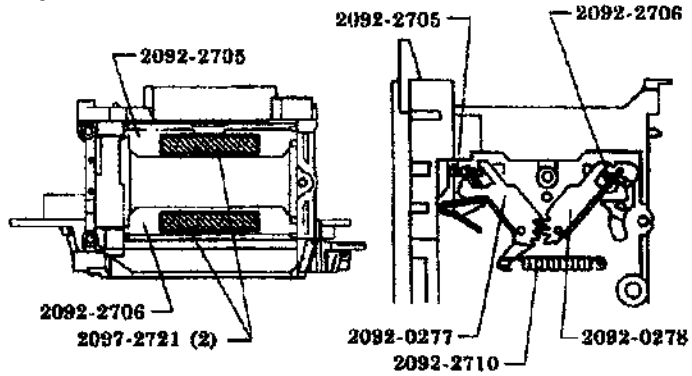
■ Fig. 2

· Hook 2078-5125 as shown.



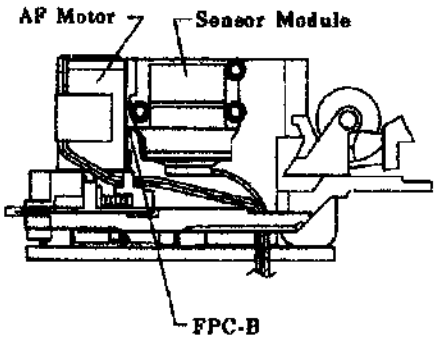
■ Fig. 3

· Install Panorama Frame Plates and Panorama Operation Lever Assys.



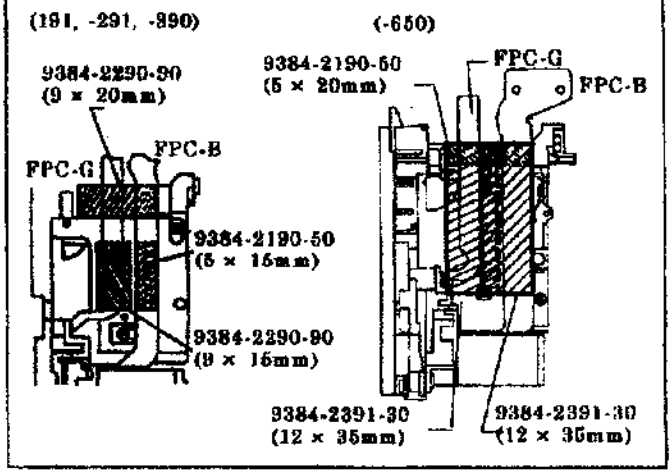
■ Fig. 4

· Arrange FPC-B and wires.



■ Fig. 5

· Affix FPC-G and B.



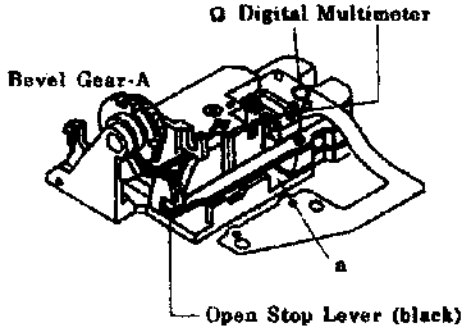
■SREL Timing Adjustment

■Equipment Required

Digital Multimeter

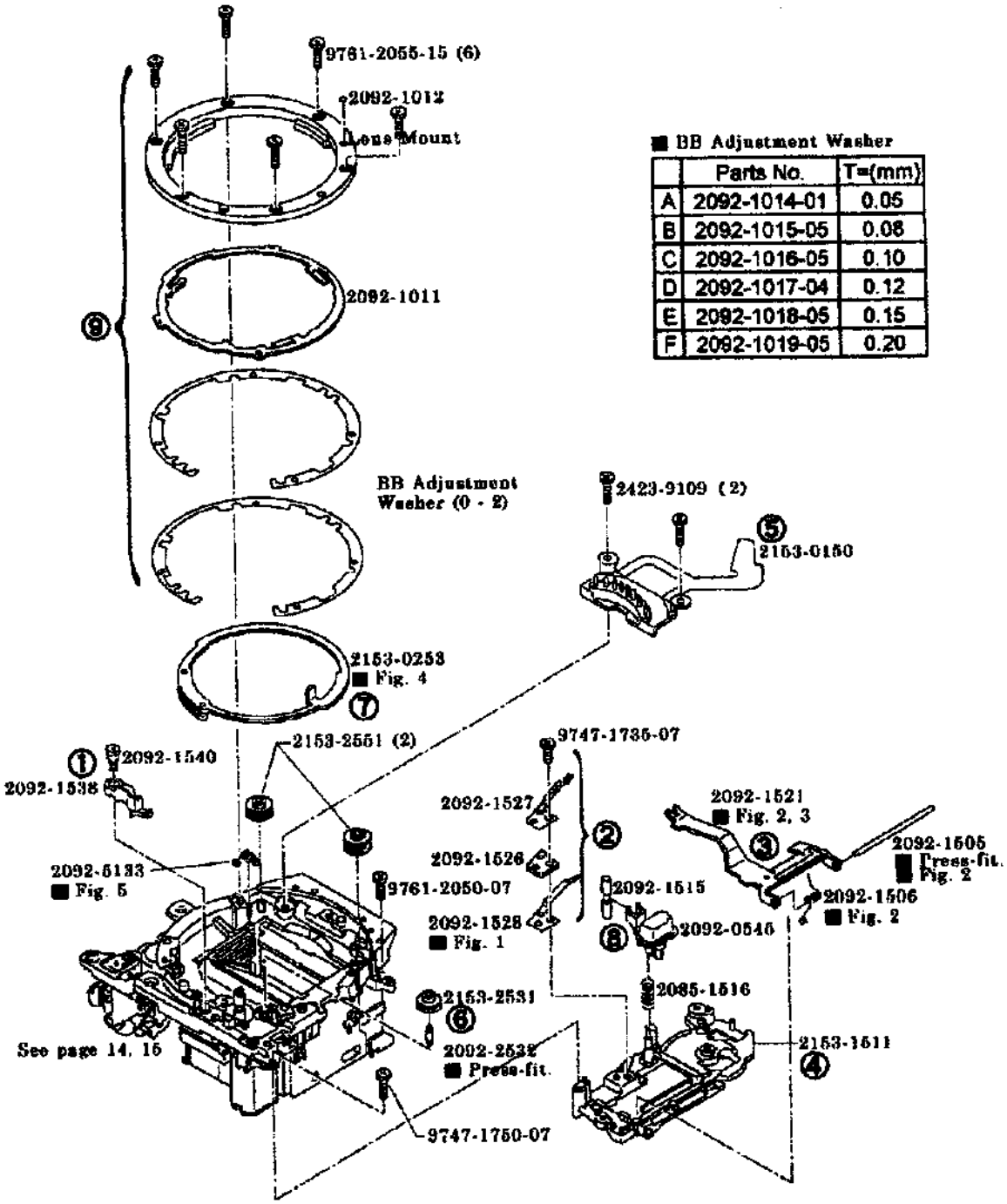
■Procedure

1. Connect Circuit Tester as shown.
2. Turn Bevel Gear-A in the arrow direction until it stops.
3. Push Open Stop Lever slowly to check that the SREL (Release Sw.) turns on always before Open Stop Lever and Bevel Gear-A disengage.
   If not, bend and adjust angle of the part-a.



Mirror Box Assy Assembly-II

■Install in the order of ① to ⑨.

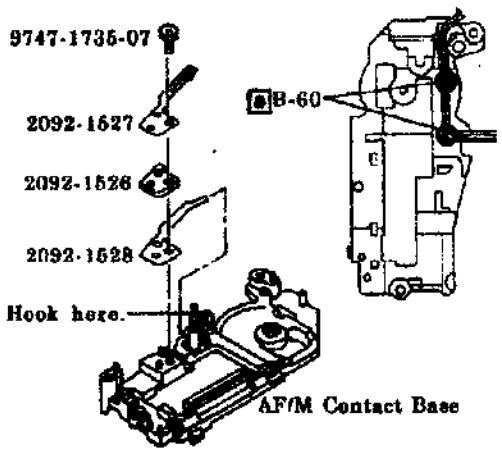


■ BB Adjustment Washer

	Parts No.	T=(mm)
A	2092-1014-01	0.05
B	2092-1015-05	0.08
C	2092-1016-05	0.10
D	2092-1017-04	0.12
E	2092-1018-05	0.15
F	2092-1019-05	0.20

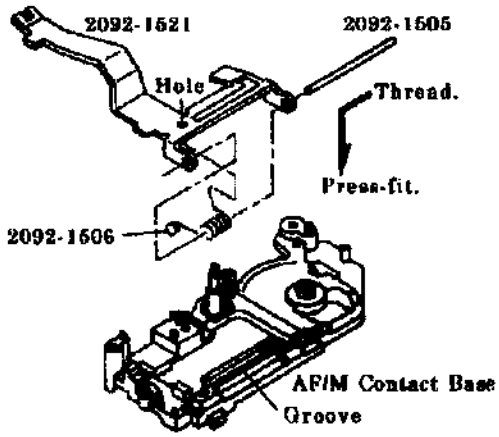
■ Fig. 1

· Hook tip of 2092-1528 to AF/M Contact Baseplate.



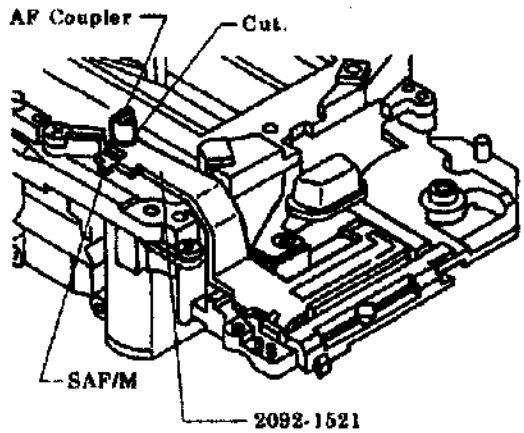
■ Fig. 2

· While inserting tip of 2092-1506 to 2092-1521. thread 2092-1505 through them. Then press 2092-1505 to fit to AF/M Contact Baseplate.



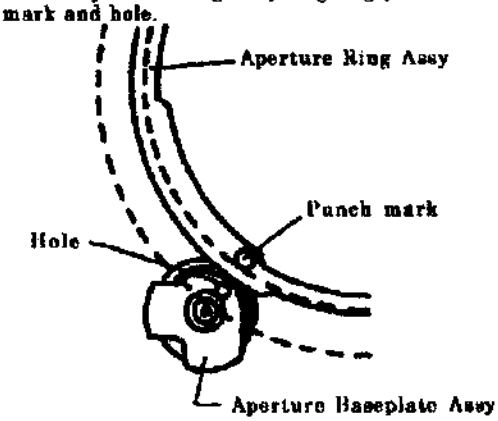
■ Fig. 3

· Fit 2092-1521's V-tip to AF Coupler as shown.



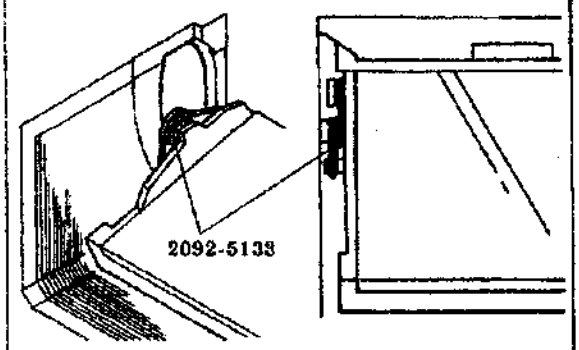
■ Fig. 4

① Set Aperture Baseplate Assy to stopped down position.
② Install Aperture Ring Assy aligning punch mark and hole.

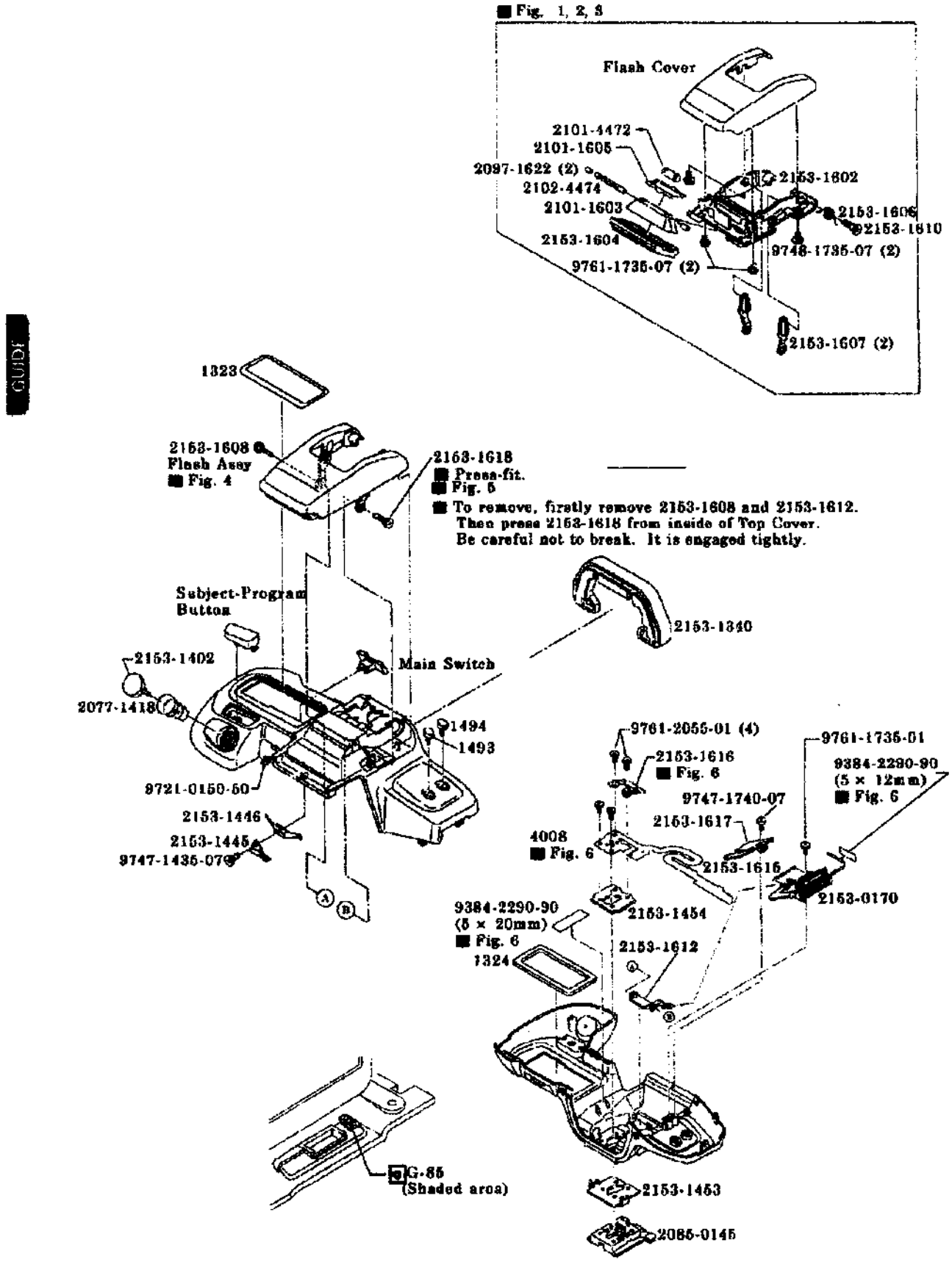


■ Fig. 5

· Install 2092-5133 as shown.

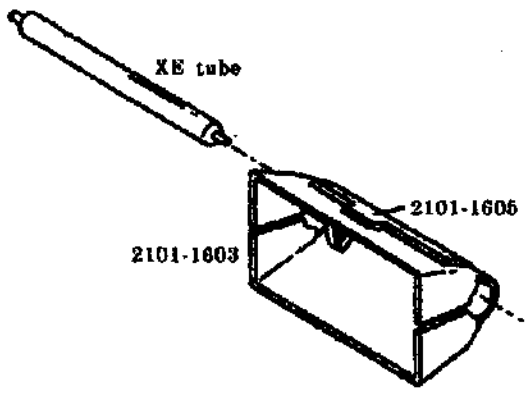


Top Cover Assy Assembly



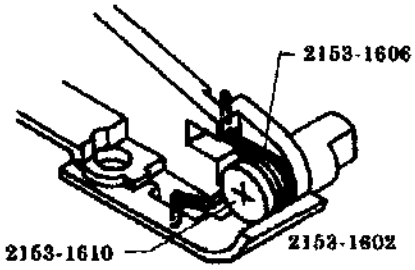
■ Fig. 1

- Assemble 2101-1603 and 2101-1605. Then insert XE tube.



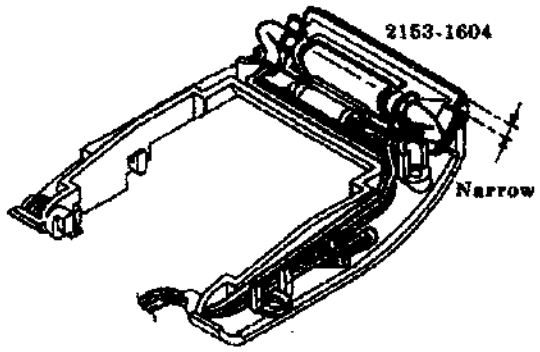
■ Fig. 2

- Install 2153-1606.



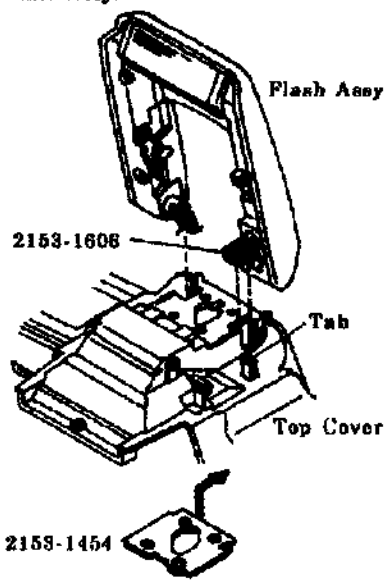
■ Fig. 3

- Install 2153-1604 in position.
- Arrange wires.



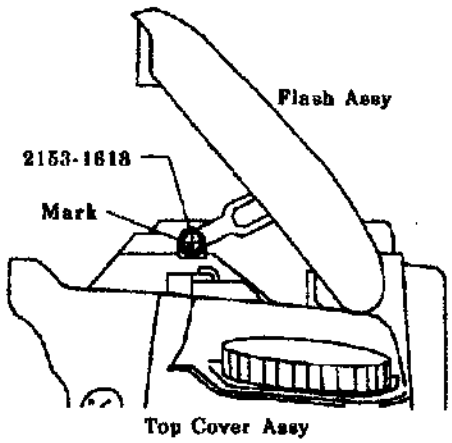
■ Fig. 4

① Install Flash Assy hooking 2153-1606 to Top Cover Assy.
② Install 2153-1464 sliding in arrow direction to affix Flash Assy.



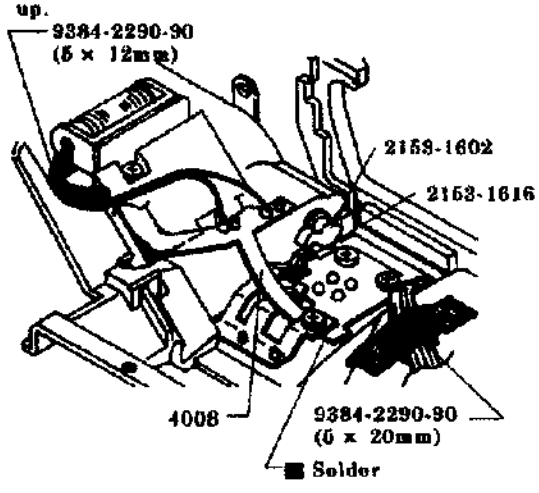
■ Fig. 5

- Turn 2153-1618 until the mark is in position. (Flash Assy clearance adjusted)



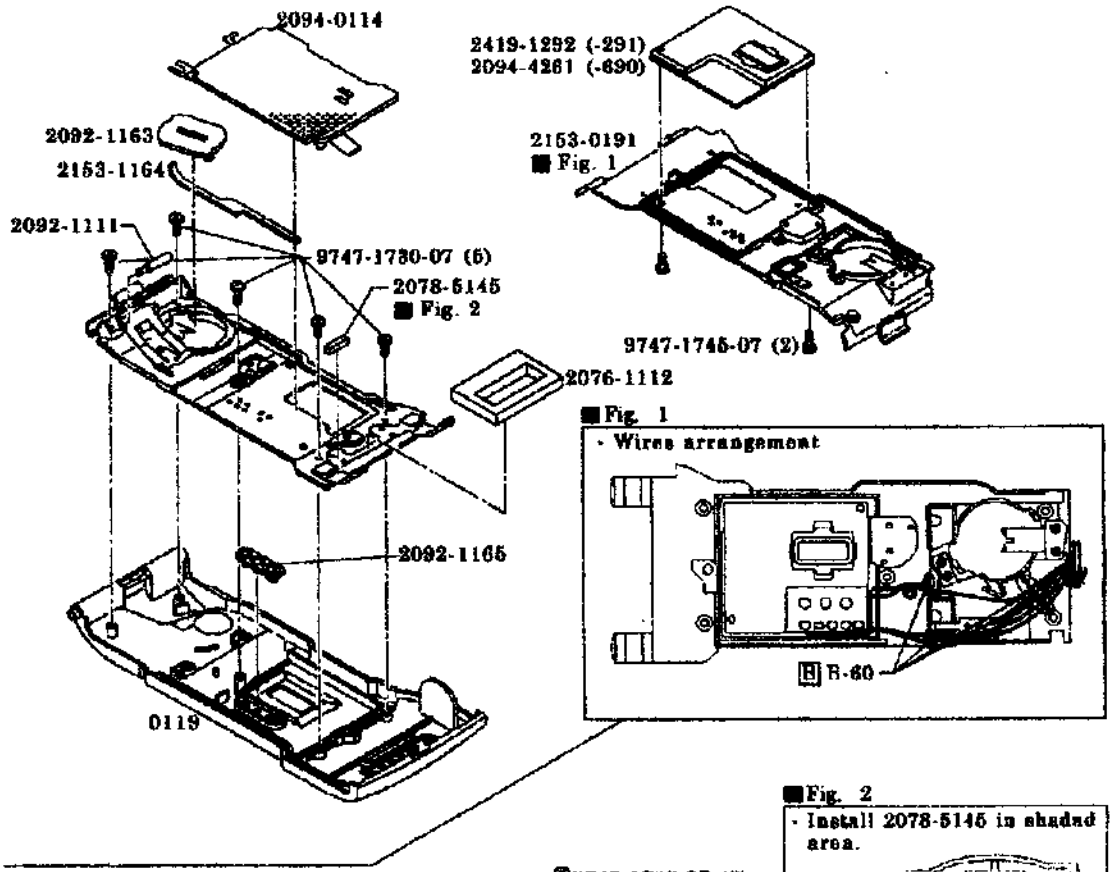
■ Fig. 6

- Arrange 4008 and wires.
- Check that 2153-1616 turns ON when flash is up.

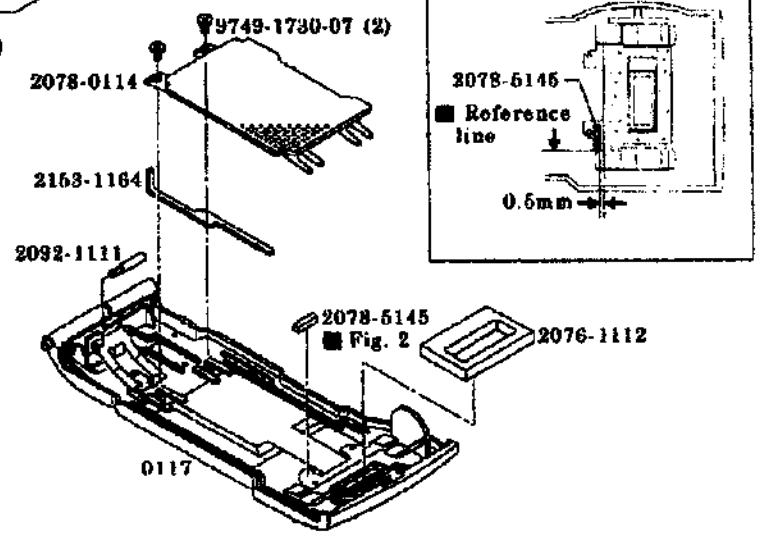


Back Cover Assy Assembly

DATE MODEL (-291, -690)



NON DATE MODEL (-191, -390)



Adjustments & Checks after repair

After making replacement or repair of the following items, check or adjust as required in the table.
☆ : Necessary check ★ : Necessary adjustment

Adjustments	Mirror Box Assy		Shutter Assy	FPC-A Assy		FPC-B Assy	Penta-Prism Assy
	Removed	Replaced	Replaced	Replaced	Replaced / Data Copy	Removed	Replaced
Body Back	☆	★	☆	★		☆	
Viewfinder Back	☆	★	☆			☆	★
Manual SS			★	★			
Aperture Preset		★		★			
AE Adjustment		☆	☆	★			★
Flash Level		★		★			
Pre Flash Level				★			
Wireless Flash Level				★			
AF	☆	★	☆	★	☆	★	
B.C. Lock Voltage				★			

Adjustments	Aperture Baseplate Assy	AF Motor Base Assy	Flash Converter PCB Assy	C157	Top Cover Assy	XE Tube
	Removed	Replaced	Replaced	Replaced	Replaced	Replaced
Body Back	☆	☆				
Viewfinder Back	☆	☆				
Manual SS						
Aperture Preset	★					
AE Adjustment	☆					
Flash Level			★	★	★	★
Pre Flash Level			★	★	★	★
Wireless Flash Level			★	★	★	★
AF		★	★			
B.C. Lock Voltage			★			

■Default FPC-A #0408 setting
- ·Flash charge inhibited
- ·F--shutter lock canceled
- ·Erratic display in Data Panel.

*Flash level adjustment (P. 35) will reset these settings. If the flash level adjustment doesn't reset these settings, check for troubles other than FPC-A Assy.

■About Data Copy (P. 44)
- ·Data Copy enables you to skip some adjustment/check items after FPC-A Assy #0408 replacement. Adjustment data of the previous FPC-A Assy can be read out and written into the newly installed FPC-A Assy.
- ·Data Copy is available even when the camera is inoperative for any reason except for;
  - ·Faulty IC-1 (Defective element, or poor soldering)
  - ·Trouble in power supply line (in Main FPC Assy)
  - ·Signal transmit failure (Such as disconnection or insufficient contact).

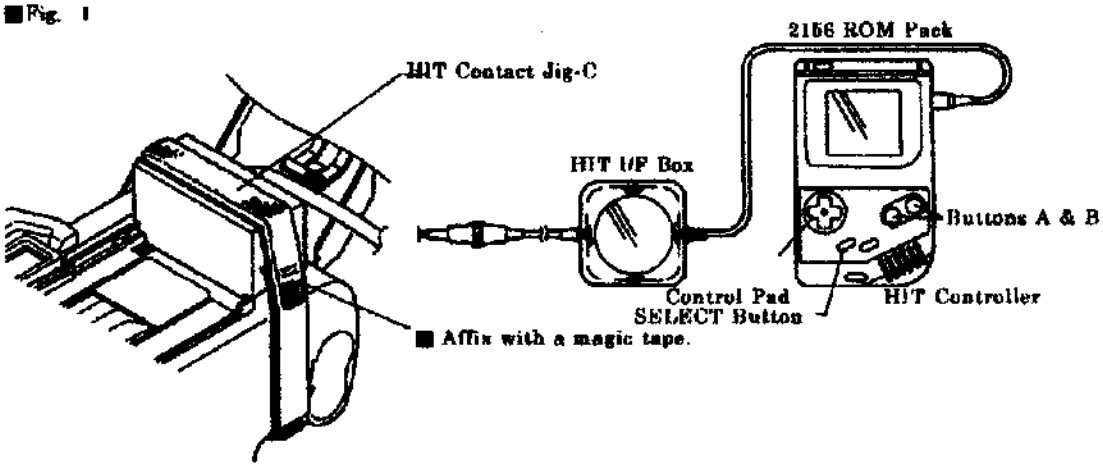
Preparation before adjustment-1 (HIT system setup)

■Set up and basic operation

Note: Before attaching Contact Jig-C to or detaching from the camera, be sure to remove power supply from the camera and turn off HIT Controller. (In case of making a Data Copy, keep the controller activated.)

1. Attach Contact Jig to the camera so that the probes of the jig properly make contact with the check lands. (Fig. 1)
2. Set up the equipment as in Fig. 1
3. Power the camera, then turn on the camera and HIT Controller. Main menu will appear in HIT Controller display. (Fig. 2)
4. Select an item with Control Pad. The selected item appear in a black box. Then press SELECT Button to enter.

■Fig. 1



■Fig. 2

2156 ADJ. PROGRAM
BC-LOCK ADJ.
AE ADJ.
SS ADJ.
PRETRIGGER ADJ.
FLASH ADJ.
AF ADJ.
ASSIST MODE

Adjustment/Check items available with 2155 ROM Pack

<Main MENU> <MENU>

BC−LOCK ADJ. (P. 38)

AE ADJ. — AE ADJ. (P. 34)
AE CHECK (P. 34)

SS ADJ. (P. 32)

PRETRIGGER ADJ. (P. 33)

FLASH ADJ. — FLASH LEVEL ADJ. (P. 35)
FLASH LEVEL CHECK (P. 35)
PREFIRE ADJ. (P. 36)
W−LESSFIRE ADJ. (P. 37)

AF ADJ. — AREA ADJ. (P. 40)
PITCH, YAW ADJ. (P. 41)
EZ ADJ. (P. 42)
EZ CHECK (P. 42)
B. B. ADJ. (P.26, 27)

ASSIST MODE (P. 43) — DATA COPY (P. 44)
TROUBLE CODE (P. 5, Trouble-shooting)
SW. CHECK (P. 4, Trouble-shooting)
FLASH CHARGE ON/OFF (P. 3)
IP LED ADJ. (P. 45)

Manual Setting SS & Aperture

■Procedure

・While pressing and holding Flash-Mode Button and Self-Timer/Drive-Mode Button simultaneously, insert batteries. Camera is set to service mode, and shutter speed and aperture can be manually set with Subject Program Button

*The Service mode will reset by removing the batteries.

■Shutter speed and aperture setting

<table>
<tr><th>Exposure mode</th><th>Shutter speed</th><th>Aperture</th></tr>
<tr><td>P</td><td>30</td><td>Max.</td></tr>
<tr><td>Portrait</td><td>Bulb</td><td>Max.</td></tr>
<tr><td>Landscape</td><td>1/90</td><td>Max.</td></tr>
<tr><td>Close-up</td><td>1/2000</td><td>Max.</td></tr>
<tr><td>Sports</td><td>*1
<table><tr><th>Frame counter</th><th>SS (S)</th></tr><tr><td>00</td><td>1/250</td></tr><tr><td>10</td><td>1/500</td></tr><tr><td>20</td><td>1/1000</td></tr><tr><td>30</td><td>1/2000</td></tr><tr><td>40</td><td>Bulb</td></tr><tr><td>50</td><td>30</td></tr><tr><td>60</td><td>15</td></tr><tr><td>70</td><td>8</td></tr><tr><td>80</td><td>1/80</td></tr><tr><td>90</td><td>1/90</td></tr></table></td><td>F5.6</td></tr>
<tr><td>Night Portrait</td><td>Last setting in the Sports mode above.</td><td>*2
<table><tr><th>Frame counter</th><th>Aperture</th></tr><tr><td>X0</td><td>F5.6</td></tr><tr><td>X1</td><td>F8</td></tr><tr><td>X2</td><td>F11</td></tr><tr><td>X3</td><td>F16</td></tr><tr><td>X4</td><td>F22</td></tr><tr><td>X5</td><td>F1.7</td></tr><tr><td>X6</td><td>F22</td></tr><tr><td>X7</td><td>F2.8</td></tr><tr><td>X8</td><td>F4</td></tr><tr><td>X9</td><td>Min.</td></tr></table></td></tr>
</table>

*1: Press Flash-Mode Button to change second digit in Frame Counter.

*2: Press Flash-Mode Button to change first digit in Frame Counter. Selectable while lens is attached. Second digit remains as the one selected in Sports mode.

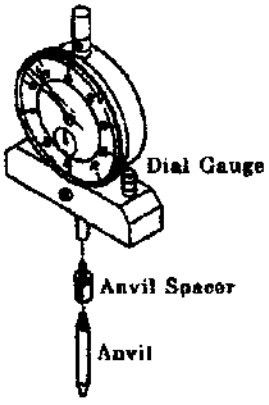
Body Back Adjustment-I

■Equipment required
Body Back Gauge
Flat Plate A
Dial Gauge
Anvil Spacer
Mount for BB Adj.

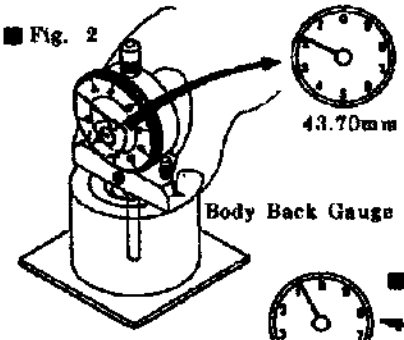
■Adjustment
*Manually set shutter speed to "Bulb" (Portrait) or "30 sec." (P) in Service mode. (See pg. 25.)
1.Attach Anvil Spacer to Dial Gauge as in Fig. 1.
2.Install Mount for BB Adj. to Camera.
3.Set Dial Gauge as in Fig. 2.
4.Measure distance between guide rail and Lens Mount surface as in Fig. 3.
5.Check that the reading meets the standard. (Subtract thickness of Mount for BB Adj. from the reading: Reading - Mount for BB Adj. Thickness = Body Back.)
6.If the reading is out of standard, adjust Mount for BB Adj..
7.Perform Body Back Adjustment-II (P. 27)

Standard 44.675 – 44.730

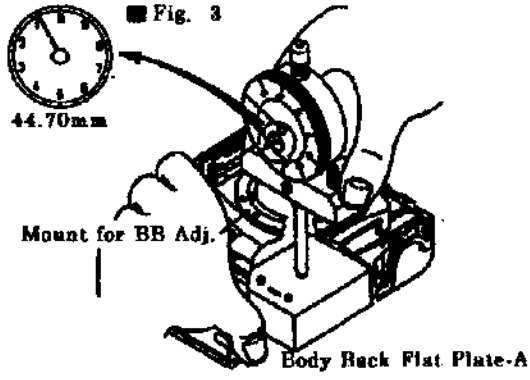
■ Fig. 1



■ Fig. 2



■ Fig. 3



■ BB Adjustment Washer

	Parts No.	T=(mm)
A	2092-1014-01	0.05
B	2092-1015-05	0.08
C	2092-1016-05	0.10
D	2092-1017-04	0.12
E	2092-1018-05	0.15
F	2092-1019-05	0.20

Body Back Adjustment-II

*Body Back Adjustment-I (P. 26) should have been completed.

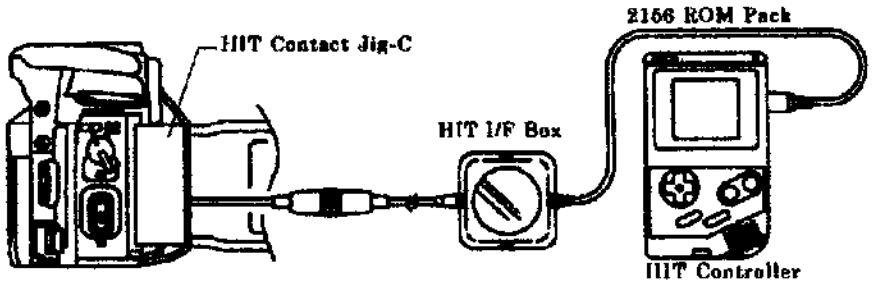
Equipment required

HIT Controller
2156 ROM Pack
HIT Contact Jig-C
HIT I/F Box

Adjustment

1. Set up the equipment as in Fig. 1.
2. Select "AF ADJ" from the main menu and press SELECT Button.
3. Select "B.B. ADJ" from the AF adjustment menu and press SELECT Button.
4. Press Shutter-Release Button partway down (S1 ON).
   Previous body-back before Body Back Adjustment-I (P. 26) appears.
5. Select the value "44.---" and select body-back after the Body Back Adjustment-I using Control Pad (+/- 0.001-stop increments), then press SELECT Button.
6. Turn S1 ON. "COMPLETE" appears to finish the adjustment.
7. Press SELECT Button. Displays are replaced with the AF adjustment menu.

Fig. 1



Viewfinder Back Adjustment

Equipment required

1000mm Collimator
Master Lens
Hexagon Wrench (1.5)

Adjustment

1. Set the camera as in Fig. 1 so that the chart is at the center of viewfinder. Set Master Lens to infinity (∞). (Fig. 1)
2. Check that the chart is in focus. If not, adjust Mirror Stopper position as in Fig. 2.
3. Release the shutter several times and check that the chart is in focus at infinity (∞).

Fig. 1

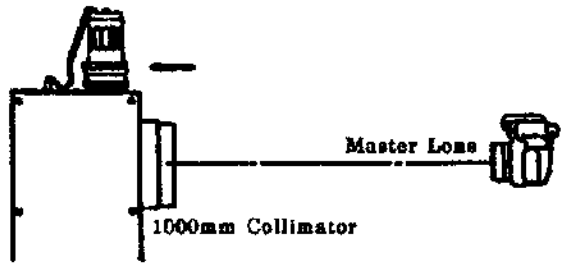
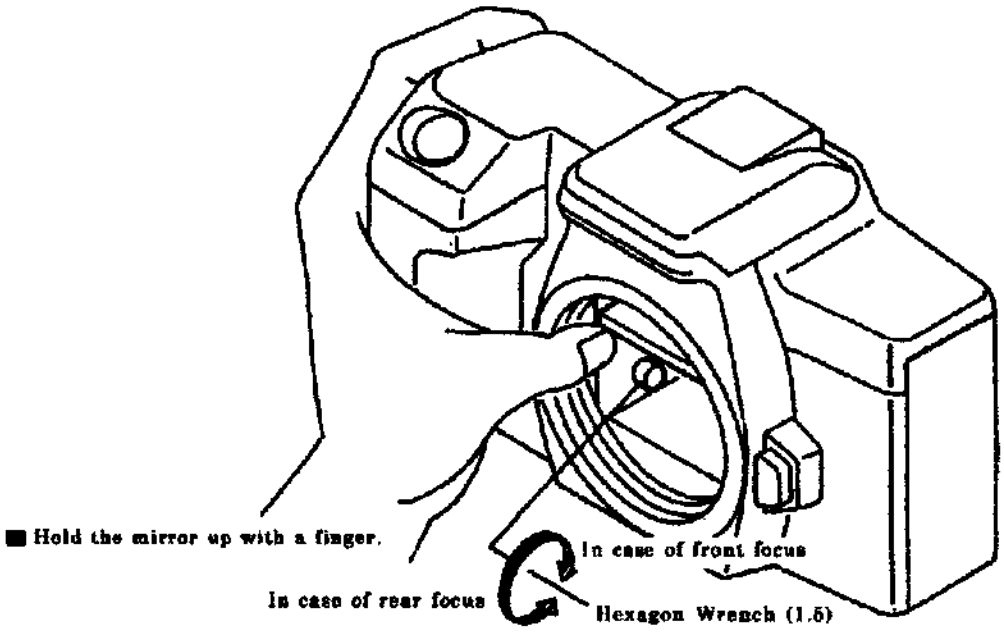


Fig. 2



Manual SS & X-sync. Time-Lag Check

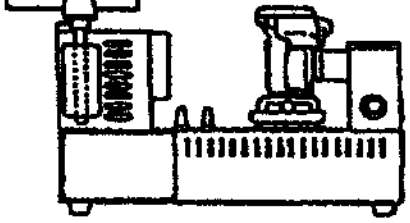
■Equipment required
Shutter Tester
OR Multi-Camera Tester, Master Lens
Body Signal Adapter (with X-contact)
X Cable
AEF Signal Adapter IV

■Manual SS Check
*Manually set shutter speed in service mode (Sports). (See page 25.)
1.Set the equipment as in Fig. 1.
2.Release the shutter at each shutter speed, and check that the reading meets the table-1 below.

■X Sync. Time-Lag Check
*Manually set shutter speed to 1/90 in service mode (Portrait). (See page 25.)
1.Set up the equipment as in Fig. 2.
2.Release the shutter and check that the reading meets the standard in table-2.

■ Fig. 1

Using Multi-Camera Tester;
Receiver: RW-3508
DIFF/PARA: DIFF
SH: EXP.T
Luminance: EV 15
Camera;
Aperture: Open
Focus mode: M
Master Lens
Focus Ring: ∞



■ Fig. 2

Using Multi-Camera Tester;
Receiver: RW-3508
DIFF/PARA: DIFF
SH: RUN.T
Luminance: EV 15
Camera;
Aperture: Open
Focus mode: M
Master Lens
Focus Ring: ∞

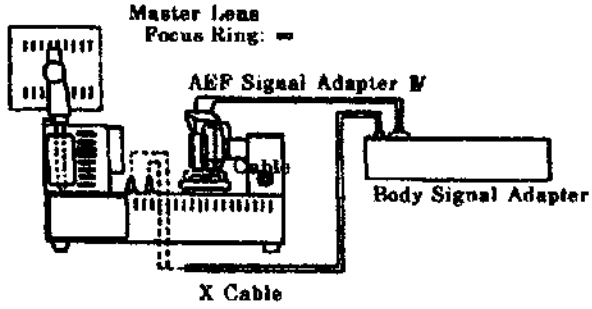


Table-1

SS (ms)	Standard at Range B (ms)	Tolerance at Range B (ms)	Unevenness of exposure
1/2000	0.488	0.311—0.765	Difference between Max. and Min. reading among A, B, and C should be 0.6EV or less.
1/1000	0.977	0.623—1.533	
1/500	1.95	1.59—2.40	
1/125	7.81	6.35—9.62	
1/2	500	467—536	

Table-2

SS (ms)	Item	Tolerance (ms)
1/90	X-Sync. Delay time	0.4 or more
	From X-contact ON to rear curtain appearance	2.0 or more

AE Level Check

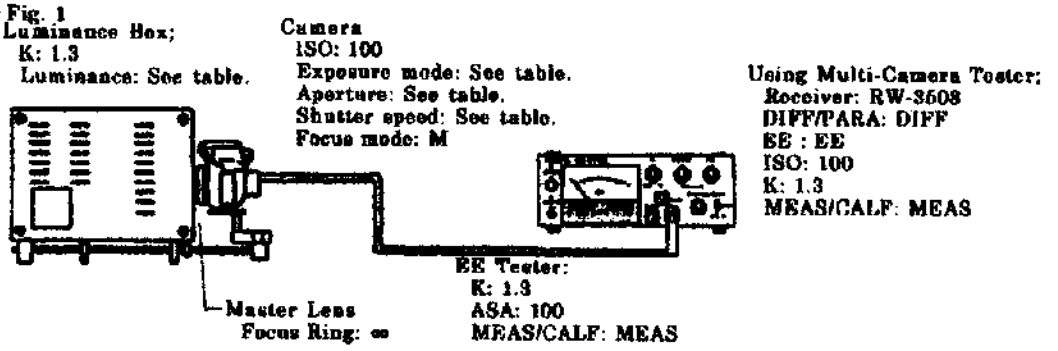
■Equipment required

Luminance Box, EE Tester
OR Multi-Camera Tester
Master Lens

■Check

1.Set the equipment as in Fig. 1.
2.Set luminance and camera setting according to the table below. Release the shutter for each setting from step-1 to -3, and check that the reading is within the tolerance.
* Apply value in brackets ( ) for Luminance Box MODEL L-222, L-223.

■ Fig. 1



Step	Luminance	Exposure mode	Tolerance
1	EV6 (EV5)	A	0±1.0EV
2	EV10 (EV11)		
3	EV15 (EV15)		

Aperture Control Check

■Equipment required

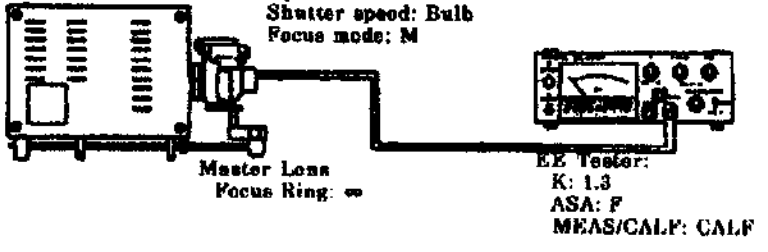
Luminance Box
EE Tester
Master Lens

■Check

Manually set shutter speed to "Bulb", aperture to f/5.6 (Sports mode, frame counter "40"). (See page 25.)
1.Set the equipment as in Fig. 1
2.Release the shutter and check that the reading is within standard (0±0.5EV)
*Reading may be above/below this range depending on the lens' aperture tolerance.

Standard 0+/-0.5EV

■ Fig. 1



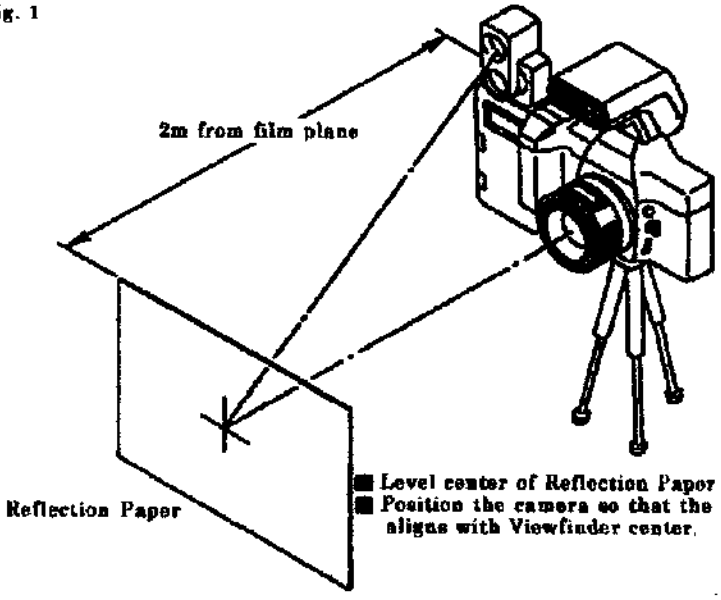
Flash Level Check using strobe tester

■Equipment required
Strobe Tester
Master Lens
Xi series FLASH(PROGRAM/MAXXUM)
Reflection paper
Film (Kodacolor Gold 100 exposed indoor for more than 1 day)

■Check
*Perform in a dark room.
*Attach an external flash. Manually set shutter speed to "1/90", aperture to "f/4" in service mode. (Sports, Night-portrait; frame counter "98"; See page 25.)
1.Set the equipment as in Fig. 1.
2.Turn the flash on and check that the flash ready signal glows.
3.Hold Strobe Tester beside the camera so that its viewfinder center aligns with that of Reflection Paper.
4.Press Strobe Tester's measuring button to set to stand-by; "NON.C" blinks. Then release the shutter.
5.Check that the reading is within standard.

Standard f/4±0.5EV

■ Fig. 1



Camera;
ISO: 100
Exposure mode: A
Aperture: f/4
With film loaded
Focus Mode: M
Master Lens;
Strobe Tester;
Reflection Type Receiver
Mode: NON. C
Flash
Power Level Selector: H

■ Level center of Reflection Paper with the lens' optical axis.
■ Position the camera so that the center of Reflection paper aligns with Viewfinder center.

Manual Set SS Adjustment

Equipment required

Shutter Tester
OR Multi-Camera Tester, Master Lens
HIT Controller
2156 ROM Pack
HIT Contact Jig-C
HIT I/F Box

Check

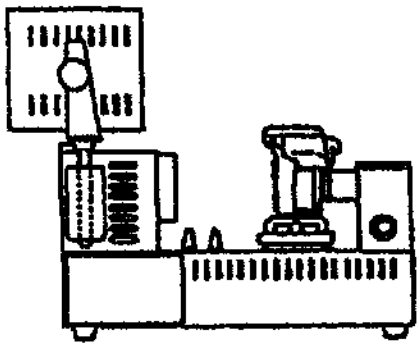
*Manually set shutter speed to "1/2000" in service mode (Closeup; See page 25.)

1. Set up the equipment as in Fig. 1.
2. Set shutter-speed to 1/2000.
3. Release the shutter several times and calculate average of readings at B-Range.
   *If the result is out of standard, perform adjustment below.

Adjustment

1. Set up the equipment as in Fig. 2.
2. Select "SS ADJ." from the main menu and press SELECT Button.
3. Select "500" using Control Pad.
4. Set the average (μs) obtained at step-3 using Control Pad and Button-A/-B, then press SELECT Button.
   - In ±2 step: Press Control Pad while pressing and holding Button-A.
   - In ±50 step: Press Control Pad while pressing and holding Button-B.
5. Press Shutter-Release Button partway down. "COMPLETE" appears when adjustment is completed.
6. Press SELECT Button to return to the main menu.

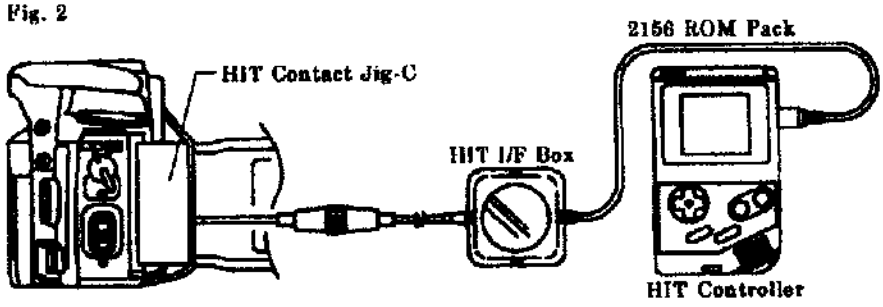
■ Fig. 1



Standard: 0.311 - 0.765

Using Multi-Camera Tester:
Receiver: RW-3508
DIFF/PARA: DIFF
SH: EXP.T
Luminance: EV15
Camera;
Aperture: Open
Focus Mode: M
Master Lens;
Focus Ring: ∞

■ Fig. 2



Aperture Preset Adjustment

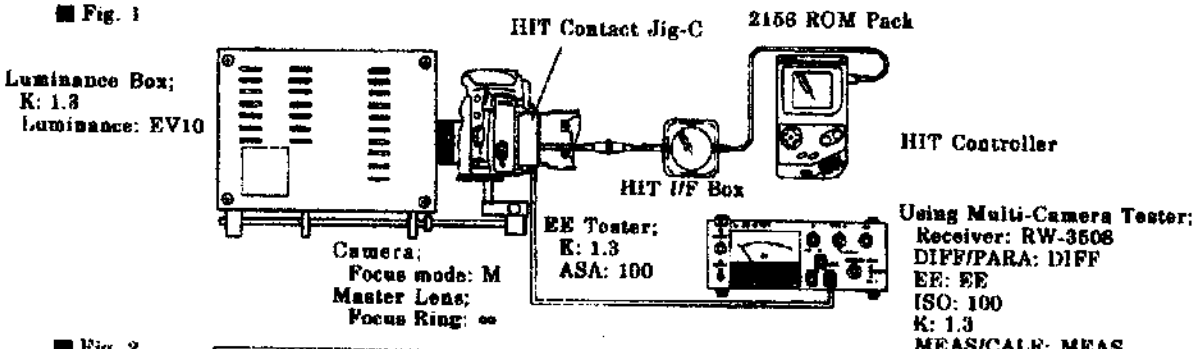
■Equipment required

Luminance Box, EE Tester
OR Multi-Camera Tester
Master Lens
HIT Controller
2156 ROM Pack
HIT Contact Jig-C
HIT I/F Box

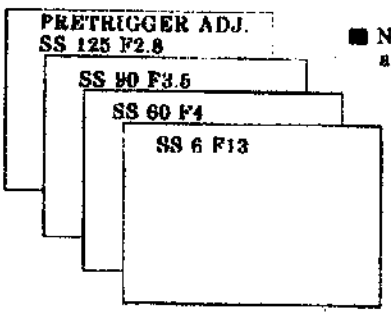
■Check

1.Setup the equipment as in Fig. 1.
2.Select "PRETRIGGER ADJ." from the main menu and press SELECT Button.
3.Set Luminance Box to EV10, then press SELECT Button.
4.Press Shutter Release Button partway down. (S1 ON) "-0.35EV OR OVER / UNDER -0.35EV" appears in HIT Controller display.
5. Press SELECT Button.
6. Turn S1 ON. Shutter is released. Check the reading in EE Tester.
 ·If -0.35EV or more, select "-0.35EV OR OVER" then press SELECT Button.
 ·If less than -0.35EV, select "UNDER -0.35EV", then press SELECT Button.
7.Turn S1 ON again. "0.5EV CHANGED" appears in display.
8. Press SELECT Button.
9. Turn S1 ON. shutter is released and reading is changed by 0.5EV from previous one (step-6).
 a) If 0.5EV different, select "YES" and press SELECT Button.
 b) If not, select "NO" and press SELECT Button. Repeat step-7 to-9 untill reading is changed by 0.5EV.
10.Set Luminance Box according to Fig. 2, and repeat step-4 to 9 until "COMPLETE" appears.
11.Press SELECT Button to return to the main menu.

■ Fig. 1



■ Fig. 2



■ Next measuring point appears after step-6.

AE Check & Adjustment

■Equipment required

Luminance Box
OR Multi-Camera Tester
Master Lens
HIT Controller
2156 ROM Pack
HIT Contact Jig-C
HIT I/F Box

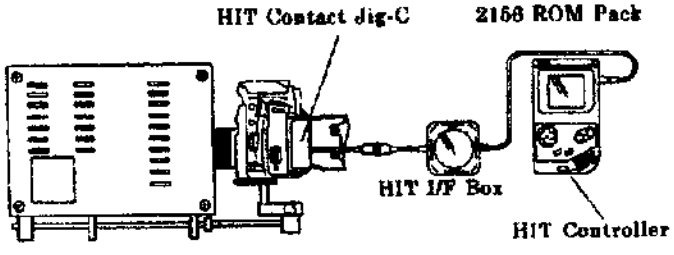
■Check

1.Set up the equipment as in Fig. 1.
2.Select "AE ADJ." from main menu and press SELECT Button.
3.Select "AE CHECK" from AE adjustment menu and press SELECT Button.
4.Press Shutter-Release Button partway down. (S1 ON)
5.Check that value in each cell is within 0 to + 0.5EV to the set luminance.
*Check with EV6, EV10, and EV15.
6.Press SELECT Button to return to AE adjustment menu.

■Adjustment

<Panorama model only> Set Panorama Switch to Normal.
1.Set up the equipment as in Fig. 1.
2.Select "AE ADJ." from main menu and press SELECT Button.
3.Select "AE ADJ." from AE Adjustment menu and press SELECT Button.
4.Set luminance to EV6, then press SELECT Button.
5.Turn S1 ON.
6.Set luminance to EV15, then press SELECT Button.
7.Turn S1 ON again.
8.Set luminance to EV10, then press SELECT Button.
9.Turn S1 ON again. "COMPLETE" appears when adjustment is completed.
10.Press SELECT Button. Displays are replaced with AE adjustment menu.

■ Fig. 1



Using Multi-Camera Tester;
Receiver: RW-3608
DIFF/PARA: DIFF
EE: EE
ISO: 100
K: 1.3
MEAS/CALF: MEAS
Luminance: EV6, EV10, EV15

Luminance Box:
K: 1.3
Luminance: EV6, EV10, EV15
Camera;
Focus mode: M
Master Lens;
Focus Ring: ∞

Flash Level Check & Adjustment

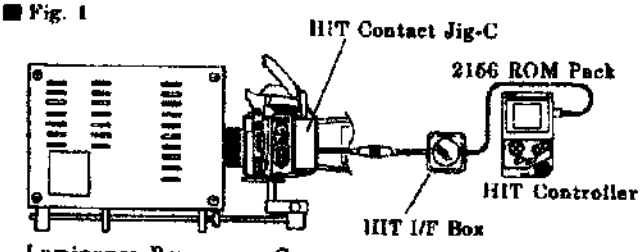
■Equipment required
Luminance Box
OR Multi-Camera Tester
Master Lens
HIT Controller
2156 ROM Pack
HIT Contact Jig-C
HIT I/F Box
Reflection Paper

■Check
1.Set up the equipment as in Fig. 1.
2.Select "FLASH ADJ" from main menu and press SELECT Button.
3.Select "FLASH LEVEL CHECK" from flash adjustment menu and press SELECT Button.
4.Set luminance to EV10, and press SELECT Button.
5.Press Shutter-Release Button part way down.(S1 ON) Shutter is released automatically, and "COMPLETE" appears in the display.
Check that the result is within the standard. (+/-0.4EV).
6.Press SELECT Button. Displays are replaced with the flash adjustment menu.

Standard +/-0.4EV

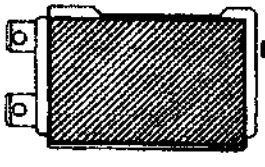
■Adjustment
1.Set up the equipment as in Fig. 1.
2.Select "FLASH ADJ." from main menu and press SELECT Button.
3.Select "FLASH LEVEL ADJ." from flash adjustment menu, and press SELECT Button.
4.Set luminance to EV10, and press SELECT Button.
5.Turn and keep S1 ON. Shutter is released automatically, and "COMPLETE" appears in the display.
Check that the reading is within the standard.
6.Press SELECT Button. Displays are replaced with flash adjustment menu.

■ Fig. 1



Luminance Box;
K: 1.3
Luminance: EV10

Camera;
Built-in flash: UP
Focus mode: M
Master Lens;
Focus Ring: ∞



■ Attach a Reflection Paper to a Pressure Plate to be discarded. And hold them at the camera back on film plane.

Using Multi-Camera Tester;
Receiver: RW-3508
DIFF/PARA: DIFF
EE: EE
K: 1.3
Luminance: EV10

■ Fig. 2

FLASH LEVEL CHECK (ADJ.)

COMPLETE

MENU

-0.37EV

Pre Flash Level Adjustment

■Equipment required

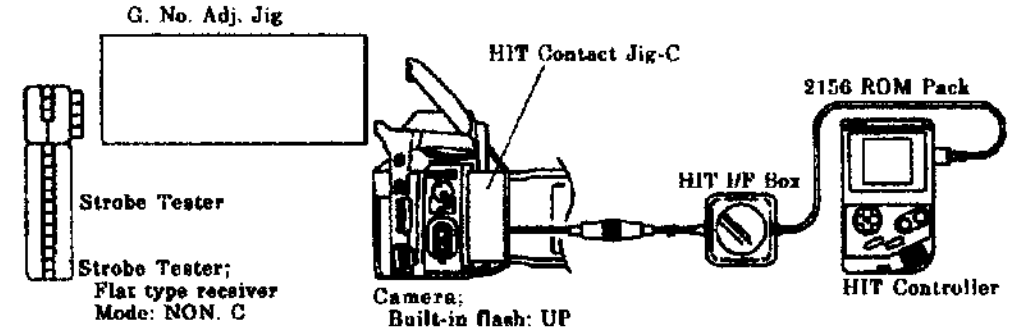
HIT Controller
2156 ROM Pack
HIT Contact Jig-C
HIT I/F Box
Strobe Tester
Guide No. Adj. Jig

■Adjustment

1.Setup the equipment as in Fig. 1
2.Select "FLASH LEVEL ADJ." from main menu and press SELECT Button.
3.Select "PREFIRE ADJ." from flash adjustment menu, and press SELECT Button.
4.Press Shutter-Release Button partway down.(S1 ON)
5.Select "FIRE TIME", and press SELECT Button.
6.Press S1 ON. Read Strobe Tester when flash fires.
*If reading is out of standard, perform adjustment below.
7.Adjust flash level (firing time: μS) using Button-A or -B, then prese SELECT Button.
·To increase flash level: Press Button-A.
·To decrease flash level: Press Button-B.
8.Repeat from step-5 to -7 until reading meets the standard range.
9.Select "MENU", and press SELECT Button. Displays are replaced with flash adjustment menu.

Allowable range 0/8+0.2 - 0/11+0.2

■ Fig. 1



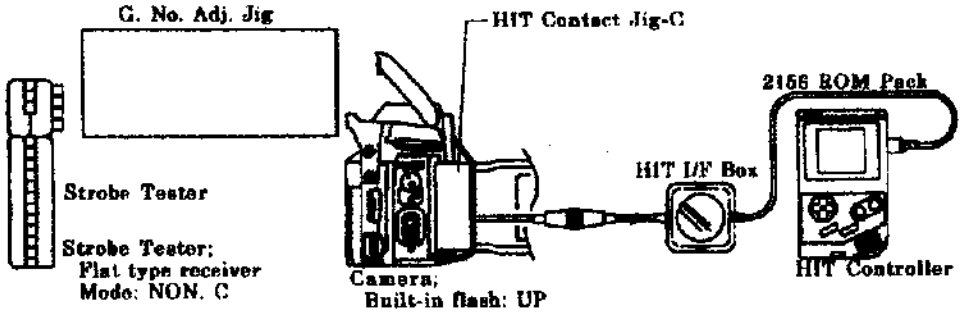
Wireless Flash Level Adjustment

■Equipment required
HIT Controller
2156 ROM Pack
HIT Contact Jig-C
HIT I/F Box
Strobe Tester
G. No. Adj. Jig.

■Adjustment
1.Setup the equipment as in Fig. 1
2.Select "FLASH ADJ." from main menu and press SELECT Button.
3.Select "W-LESSFIRE ADJ." from flash adjustment menu, and press SELECT Button.
4.Press Shutter-Release Button partway down (S1 ON)
5.Select "FIRE TIME" and press SELECT Button.
6.Press S1 ON. Read Strobe Tester when flash fires.
*If reading is out of standard, perform adjustment below.
7.Adjust flash level (firing time: μS) using Button-A or -B, then press SELECT Button.
・To increase flash level: Press Button-A.
・To decrease flash level: Press Button-B.
8.Repeat from step-5 to -7 until reading meets the standard range.
9.Select "MENU", and press SELECT Button. Displays are replaced with flash adjustment menu.

Allowable range: f/2.8 - f/4

■ Fig. 1



B.C. Lock Voltage Adjustment

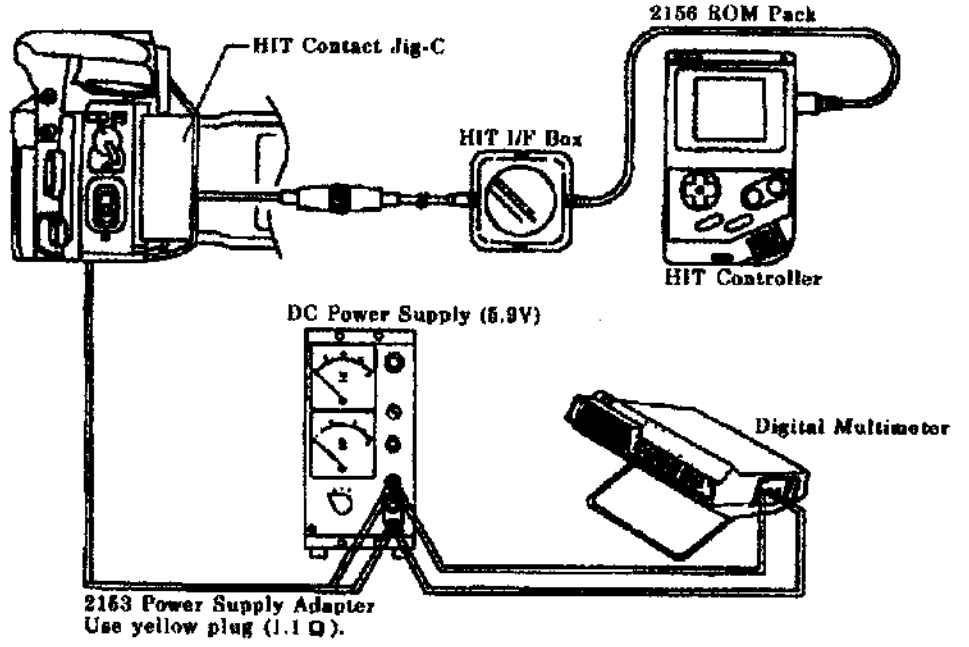
■Equipment required
HIT Controller
2156 ROM Pack
HIT Contact Jig-C
HIT I/F Box
DC Power Supply
Digital Multimeter
2153 Power Supply Adapter

■Adjustment
1.Set up the equipment as in Fig. 1.
2.Select "BC-LOCK ADJ." from main menu and press SELECT Button.
3.Set DC Power Supply to 5.90V, then press SELECT Button.
4.Press and hold Shutter-Release Button partway down until "COMPLETE" appears.
5.Press SELECT Button to return to the main menu.

■Check
1.Check that B.C. lock operates at the voltage below.

Standard: Shutter locks at 4.7V or less, unlocks at 5.1V or more.

■ Fig. 1



Preparation before adjustment-2 (AF adjustment)

*After replacing FPC-A, FPC-B, or Mirror Box or its relative parts, always perform adjustment ① to ③ (P. 40- P. 42)

Before AF adjustment

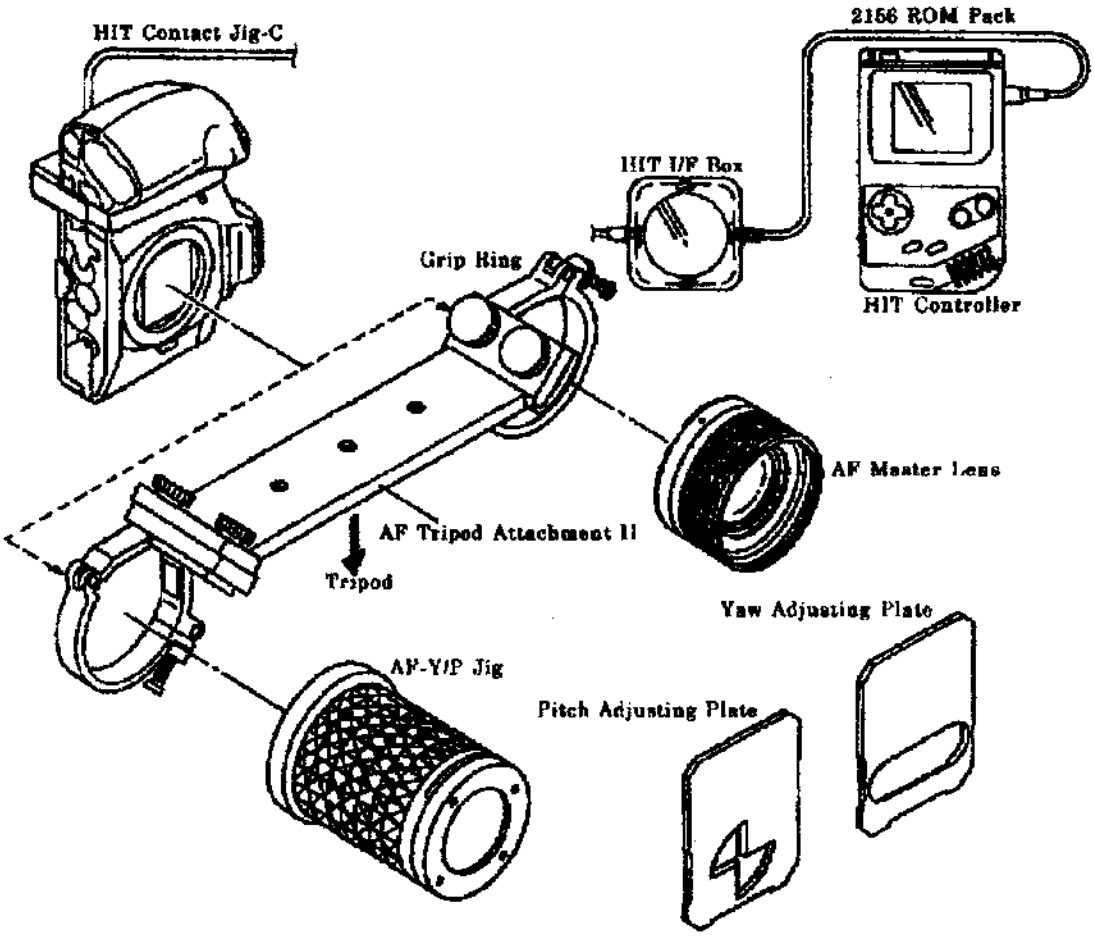
*The following items should have been completed before starting AF adjustment.

1. Pressure back and viewfinder back check and adjustment
2. Install all external parts except for Bottom Cover.
3. When CCD sensor module is out of position after replacing FPC-B, tighten three AF adjusting screws #2089-5051 until they stop, then evenly loosen them by 0.4mm (1.14 turns).

Equipment required

See "Tools & Instruments" (P. 47) for model and jig code.

AF Master Lens
AF Chart Ⅵ (Commonly used to 2085)
AF Chart Ⅶ
HIT Controller
2156 ROM Pack
HIT Contact Jig-C
HIT I/F Box
AF-Y/P Adjuster
AF Tripod Attachment II
Grip Ring
TORX L Wrench
Hexagon Bar Wrench (1.5)
or Hexagon Screwdriver
Flood Lamp (Color temperature of 2800° K)



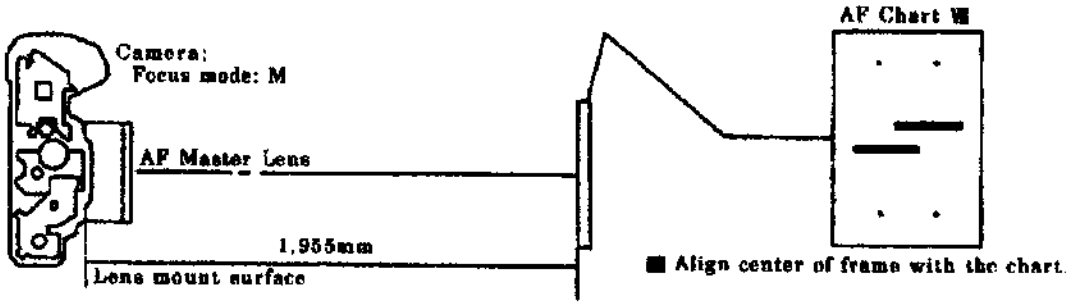
① AF Area Adjustment

■Adjustment

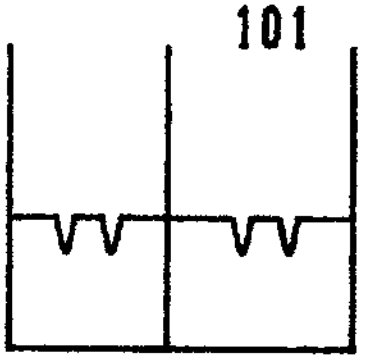
1.Set up the equipment as in Fig. 1
2.Select "AF ADJ." from main menu and press SELECT Button.
3.Select "AREA ADJ." from AF adjustment menu and press SELECT Button.
4.Press and hold Shutter-Release Button partway down (S1 ON) so lines with dents and a reading appear in HIT Controller display. Check that each line has two dents like the ones in Fig. 2 and the reading is within standard below.
*If not, perform adjustment as follows.
5.Adjust Sub Mirror position using Hexagon Bar Wrench as in Fig. 3.
6.Repeat step-4 and -5 until the reading is within the standard.
7.Press SELECT Button. Displays are replaced with the AF Adjustment menu.

Standard 100+/-4

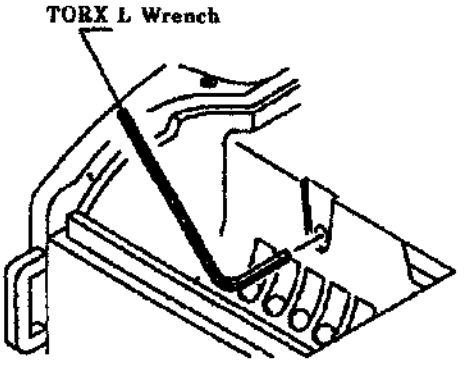
■ Fig. 1



■ Fig. 2



■ Fig. 3



② Pitch Yaw Adjustment

*Light up the chart with a flood lamp during Pitch, Yaw adjustment.

■Pitch Adjustment

1. Attach AF-Y/P Adjuster to the camera, and set Pitch Adjusting Plate. (Fig. 1)
2. Select "AF ADJ." from main menu and press SELECT Button.
3. Select " PITCH, YAW ADJ." from AF adjustment menu and press SELECT Button.
4. Press and hold Shutter-Release Button partway down so that display as Fig. 2 appears.
5. Adjust Pitch Adjusting Screw as in Fig. 4 so that the reading in HIT Controller is within standard. (087-115)

■Yaw Adjustment

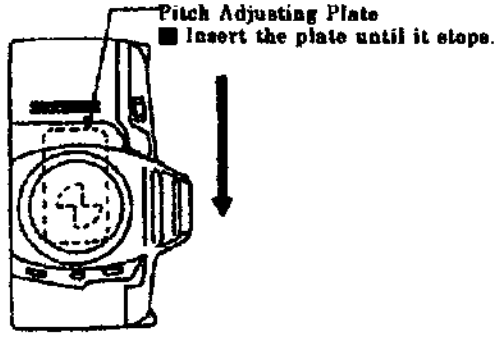
1. Replace Pitch Adjusting Plate with Yaw Adjusting Plate. (Fig. 3)
2. Press and hold Shutter-Release Button partway down so that display as Fig. 2 appears.
3. Adjust Yaw Adjusting Screw as in Fig. 4 so that the reading in HIT Controller is within standard. (084 - 119)
4. Press SELECT Button. Displays are replaced with the AF adjustment menu.

■Check

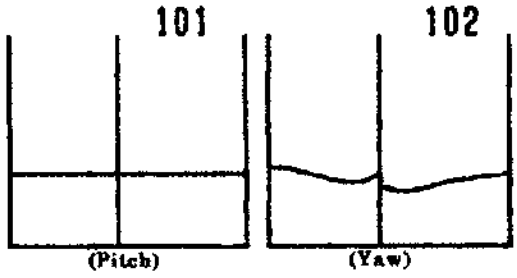
1. Check AF area referring to page 40. Perform "①AF Area Adjustment" and "②Pitch, Yaw Adjustment" repeatedly until all readings meet the standards.

Standard	Pitch	087-115
	Yaw	084-119

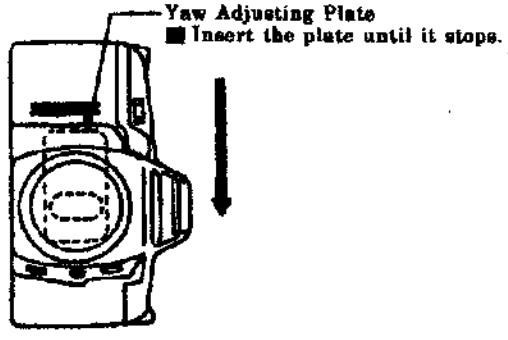
■ Fig. 1



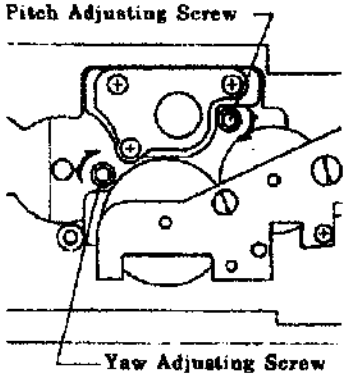
■ Fig. 2



■ Fig. 3



■ Fig. 4



③ EZ Adjustment

■Check

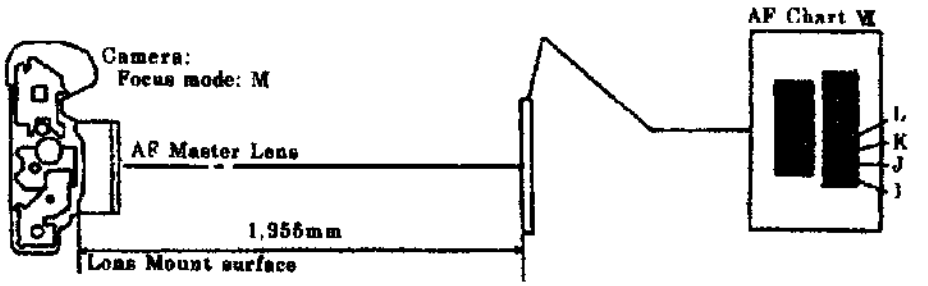
1.Set up the equipment as in Fig. 1
2.Select "AF ADJ." from main menu and press SELECT Button.
3.Select "EZ CHECK" from AF adjustment menu and press SELECT Button.
4.Looking through the viewfinder, align Focus Frame with "K" on AF ChartⅥ.(Fig. 1, 2)
5.Press and hold Shutter-Release Button partway down. Reading as Fig. 3 appears.
*Check that the reading is within standard range (0+/-30).
6.Select "MENU" and press SELECT Button to quit.

■Adjustment

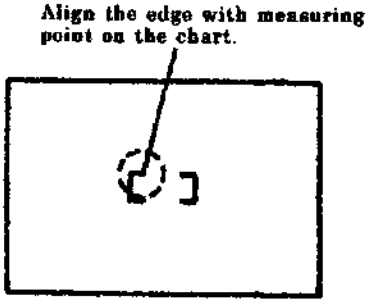
1.Set up the equipment as in Fig. 1
2.Select "AF ADJ." from main menu and press SELECT Button.
3.Select "EZ ADJ." from AF adjustment menu and press SELECT Button.
4.Looking through the viewfinder, align Focus Frame with the one appears in HIT Controller. Then press SELECT Button.
5.Press and hold Shutter-Release Button partway down until the next measuring point appears in the display.
6.Repeat step-4 and -5 for each measuring point from "I" to "L". "COMPLETE" appears when all measuring points are adjusted.
7.Press SELECT Button. Displays are replaced with the AF adjustment menu.

Standard 0+/-50

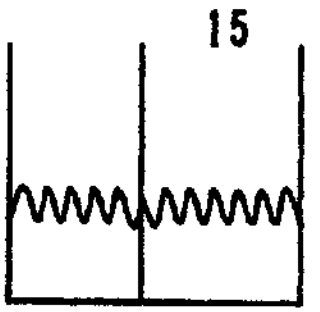
■ Fig. 1



■ Fig. 2



■ Fig. 3



Assist Mode

■The following 5 assistant items are available with 2156 ROM Pack.

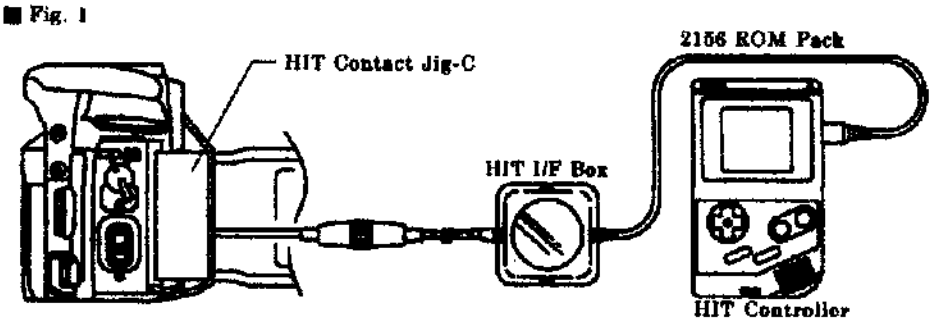
Data copy
Trouble code check
Switch check
Flash charge on/off
Data imprinting intensity adjustment

ASSIST MODE
DATA COPY
TROUBLE CODE
SW CHECK
FLASH CHARGE ON/OFF
IP LED ADJ.
MENU

■Preparation

1. Setup the equipment as below.
2. Select "ASSIST MODE" from main menu and press SELECT Button. Assist mode menu appears in the display.

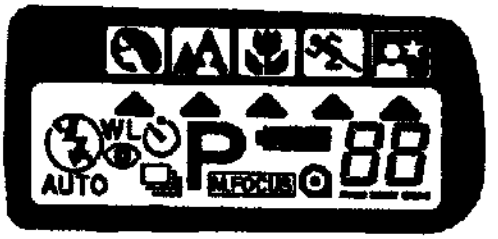
■ Fig. 1

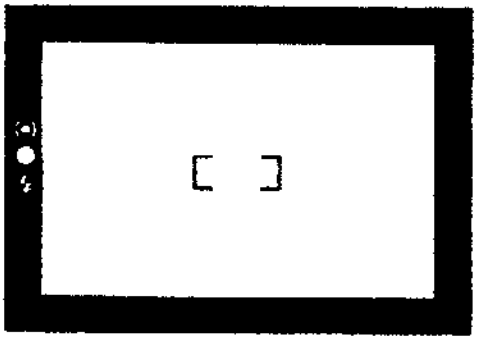


LCD Displays Check

■Check

1. Pressing and holding Subject-Program Button and Self-timer/Drive-mode Button simultaneously, slide Main Switch to ON. All segments light in Body and Viewfinder Data Panel.
   * Sliding Main Switch to OFF or re-installing batteries will resume normal display.





Data Copy

Note: Keep HIT Controller activated until whole copying procedure is complete. Otherwise, the data stored in HIT Controller is erased. Before starting data copy, check the battery capacity of HIT Controller, and replace batteries with fresh ones if exhausted.

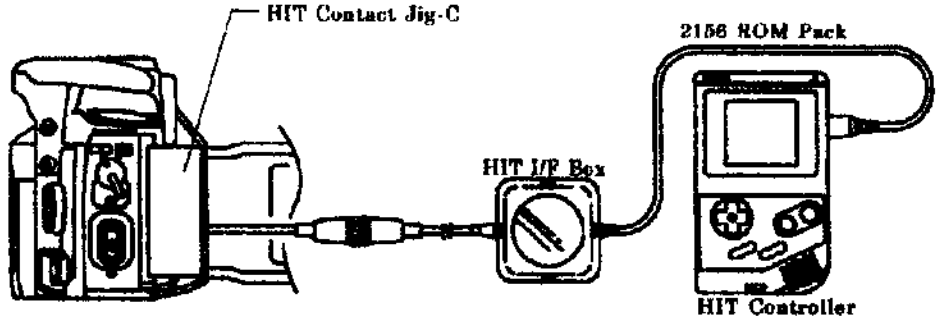
■Equipment required
HIT Controller
2156 ROM Pack
HIT Contact Jig-C
HIT I/F Box

■Data copy
*Never turn HIT Controller off during data copy.

■Read out from original FPC-A (before removing FPC-A)
1.Set up the equipment as in Fig. 1.
2.Select "ASSIST MODE" from main menu and press SELECT Button.
3.Select "DATA COPY" from assist mode menu and press SELECT Button.
4.Select "READ" and press SELECT Button.
5.Press Shutter-Release Button partway down. (S1 ON) "DATA STORED" appears when data copy to HIT Controller is completed.

■Write in to new FPC-A (after installing new FPC-A)
1.Set up the equipment as in Fig. 1.
2.Select "WRITE" and press SELECT Button.
3.Turn S1 ON. "COMPLETE" appears when data copy to HIT Controller is completed.
4.Select "MENU" and press SELECT Button. Displays are replaced with assist mode menu.

■ Fig. 1



Data imprinting intensity adjustment

Equipment required

HIT Controller
2156 ROM Pack
HIT Contact Jig-C
HIT I/F Box

Procedure

1. Set up the equipment as in Fig. 1.
2. Select "ASSIST MODE" from main menu and press SELECT Button.
3. Select "IP LED ADJ." from assist mode menu and press SELECT Button.
4. Press Shutter-Release Button partway down. (S1 ON)
5. Select a desirable intensity and press SELECT Button.
   - NORMAL: Standard
   - LITTLE: Weaker
   - MUCH: Stronger
6. Turn S1 ON again. "COMPLETE" appears when adjustment is completed.
7. Press SELECT Button. Displays are replaced with the assist mode menu.

Fig. 1

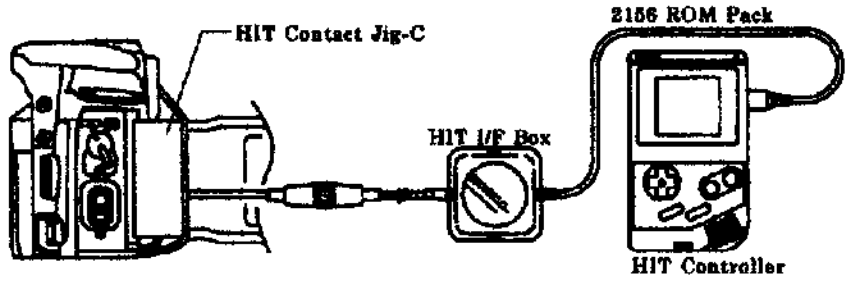
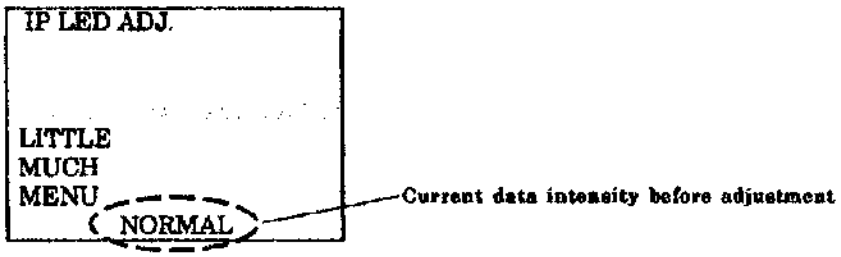


Fig. 2



Error Code on HIT Controller

■Error code list

Item	Error code	Meaning	Cause
BC lock voltage adjustment	10	A/D conversion reading at battery check is incorrect	Voltage is wrongly set.
			Resistance of Power Supply Adapter is defective.
			Resistor for BC dummy current is defective, Defective transistor
AE adjustment	20	Picture frame is wrongly set.	Picture frame is wrongly set.
			Defective SPANO
	21	Little difference between EV6 and EV15.	Luminance is wrongly set.
			SPC is disconnected.
Manual set SS adjustment	28	Out of adjustable range; input value is out of adjustable range	Defective Shutter Assy
Flash level adjustment	30	Flash level is incorrect.	Luminance is wrongly set.
			SPC is disconnected.
			Reflection Paper isn't set.
			Aperture mechanism is defective.
Aperture preset adjustment	50	Out of adjustable range	Defective Aperture Baseplate Assy
EZ Adjustment	61	Low contrast	Chart is out of position
			Chart is too close/far.
			CCD is defective.

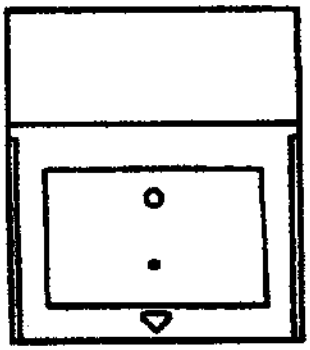
Tools & Instruments

Luminance Box <Model L-2101, L-2111, *L-222, *L-223>
EE Tester <Model EE-2101, EE-2111>
Shutter Tester <Model S-2201, S-2101>
1000mm Collimator <Model RC- Ⅲ ,* Ⅱ ,* Ⅰ >
Digital Multimeter <FLUKE 83>
DC Power Supply <MTR18-2>
Camera Leak Tester <CL-1101, CL-1201>
Strobe Tester <ST- Ⅴ ,* Ⅳ ,* Ⅲ >
PROGRAM (MAXXUM) FLASH Xi series
Master Lens <2072-0001-75>
AF Master Lens <2072-0006-75>
HIT Controller<7981-5001-01>
2156 ROM Pack <7981-5002-32>
HIT Contact Jig-C <7981-5001-13>
HIT I/F Box <7981-5001-33>
AF Chart Ⅶ <2082-0003-75>
*Common to #2085
(See P. 29, 2085 Repair Guide)
AF Chart Ⅷ <2085-0001-75>
Body Signal Adapter (with X contact)
AEF Signal Adapter Ⅳ <7981-2014-34>
X Cable <7981-2014-16>
G No. Adj. Jig <2082-0005-75>
Motor Axis Sapnner <2078-0421-75>
2153 Power Supply Adapter <7981-1018-75>
OR Multi-Camera Tester <7981-1025-01>

AF Tripod Attachment Ⅱ <2072-0003-76>
AF-Y/P Adjuster <2076-0006-75>
Grip Ring <7983-9004-01>
Mirror Remover <2071-5806-75>
Mirror Positioner <2072-5151-75>
Mount for BB Adj. <7982-2007-01>
Anvil Spacer <7982-2001-31>
Body Back Flat Plate-A <7982-2004-01>
Body Back Gauge <7982-2002-01>
Dial Gauge <7982-2001-11>
TORX L Wrench (T8) <7983-1032-01>
Discharger Ⅱ <7983-9005-01>
Hexagon Bar Wrench (1.5)
Hexagon Screwdriver <7983-1040-01>
Reflection Paper <7981-3001-51>
Flood Lamp (Color temperature of 2800° K)
Film (Kodacolor gold 100 Color negative film;
Exposed indoor for 24 hours or longer)

*: Production ceased.

■ 2156 ROM PACK <7981-5002-32>



Subsidiary Materials

■Grease
G-75 <7984-1075-01>
G-85 <7984-1085-01>

■Adhesive
B-50 <7984-2050-01>
B-60 <7984-2060-01>

Trouble-shooting Chart

■This section consists of the following items.

CONTENTS	page
■Precautions	1
■Switches	2
■Name of switches	2
■Switch Function	3
■Switch Check	4
■Trouble code	5

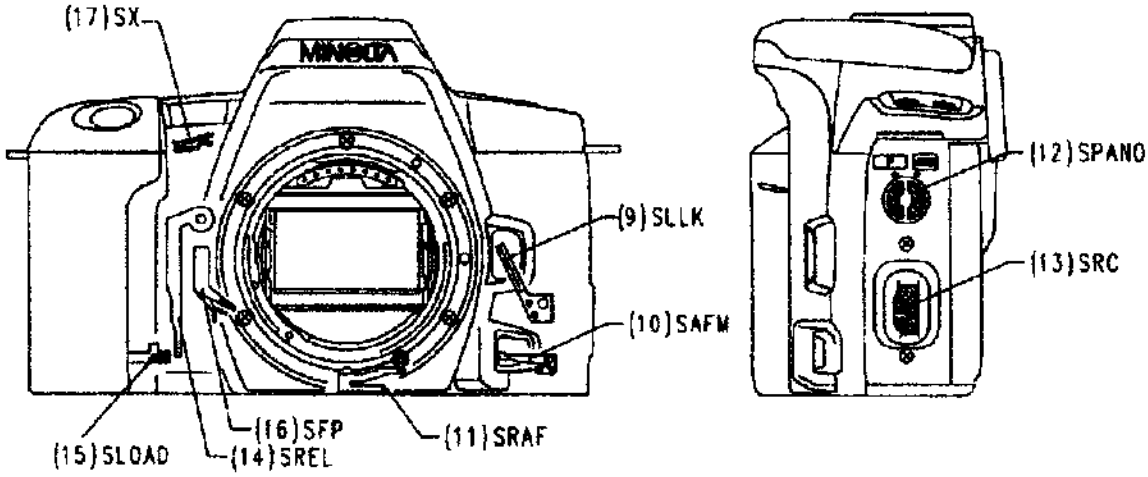
CONTENTS	page
■Map of electrical elements	6
■Electrical Elements list	6
■FPC-A Assy (0408)	7-8
■Flash Converter PCB Assy (2155-0455)	9
■FPC-K (4011)	10
■Penta-Prism Assy (0580)	10
■FPC-H (4008)	10
■FPC-M Assy (2155-0413)	11
■FPC-D Assy (2155-0404)	11
■Aperture Baseplate Assy (2153-0250)	12
■FPC-P Assy (2163-0416)	12
■Circuit Diagram	13
■Circuit Diagram (Flash)	14

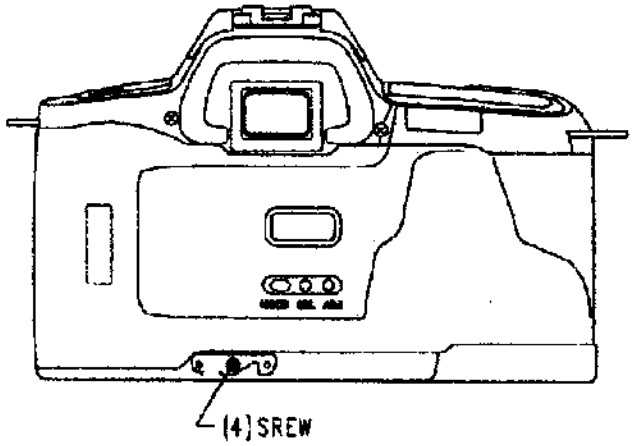
■Precautions

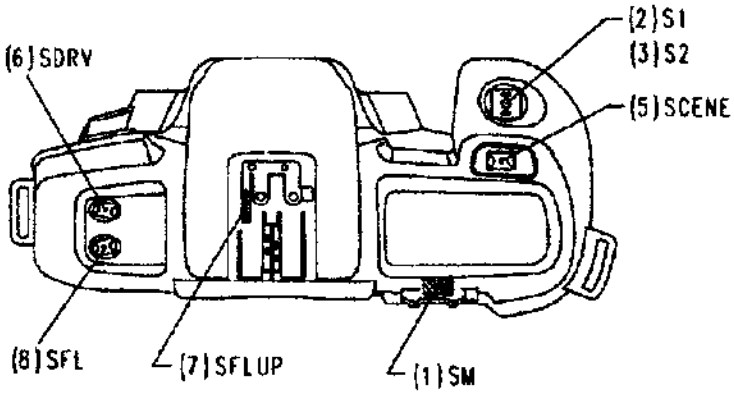
(1)To check voltage, use digital Multimeter or an apparatus which input impedance of 10MΩ or greater.
(2)To check conductivity, use a circuit tester of 3V or less.
(3)check mainly soldering at lead wires or electrical elements and switch operation, since elements (IC, diode, transistor, resistor, or condenser) seldom cause the trouble.
(4)When checking, do not push elements or pull lead wires strongly.
(5)When checking voltage at patterns where switch operates, be careful not to prevent switch operation or to scratch patterns.
(6)Before removing electrical parts, be sure to disconnect Power Supply.
(7)Before soldering, heat the soldering iron to 290 - 340℃. If higher, solder quickly.
(8)When handling ICs avoid static electricity.
(9)When using DC Power Supply, set the unit to 5.6V/0.6Ω.

Switches

Name of switches







■ Switch Function

No.	Symbol	Description	Function	Operation
1	SM	Main	Activates/deactivates camera	ON/OFF by sliding Main Switch
2	S1	Metering	Starts metering, focusing, indications	ON by pressing Shutter-Release Button partway down.
3	S2	Release	Starts shutter release	ON by pressing Shutter-Release Button all the way down.
4	SREW	Rewind	Starts mid-roll rewind	ON by pressing Rewind Button
5	SCENE	Subject-Program mode	Selects subject program mode	By pressing Subject Program Button
6	SDRV	Self-timer /Drive-mode	Selects self-timer, continuous, or single-drive	By pressing Self-Timer/Drive Mode Button
7	SFLUP	Flash Pop-Up	Detects built-in flash status	ON when built-in flash is up.
8	SFL	Flash	Selects fill-flash, flash mode	By pressing Flash-Mode Button
9	SLLK	Lens lock	Detects Lens Release status	OFF while lens is attached
10	SAFM	Focus mode	Selects AF/M mode	On when Focus Mode Button is pressed
11	SRAF	AF/M	Detects AF coupler status	OFF in AF mode, ON in M mode
12	SPANO	Panorama	Selects Normal/Panorama frame	OFF when panorama frame is selected
13	SRC	Back cover	Detects back cover status	OFF when back cover is closed.
14	SREL	Release detect	Detects mirror up start and mechanical charge completion	ON when mirror is released, OFF when mechanical charge completes.
15	SLOAD	Mechanical position detect	Detects film drive and mirror charge completion	ON during mechanical charge OFF when mirror charge completes.
16	SFP	Aperture pulse	Detects aperture status	ON and OFF alternately according to Aperture Ring operation
17	SX	Sync.	Triggers flash	ON when 1C run completes, OFF when film advance start

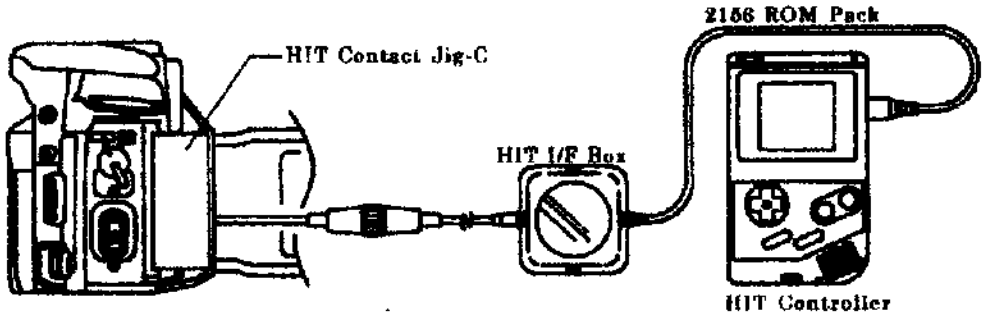
4 A(2156)

Switch Check

■Equipment required
HIT Controller
HIT I/F Box
2156 ROM Pack
HIT Contact Jig-C

■Check
1.Set up the equipment as in Fig. 1.
2.Select "SW CHECK" from assist mode menu and press SELECT Button.
3.Press Shutter-Release Button partway down.
Switch status appears as in Fig. 2.
Some of them don't appear unless S1 ON.
4.Press SELECT Button. Displays are replaced with the assist mode menu.

■Fig. 1



■Fig. 2

Trouble code

■Check-1

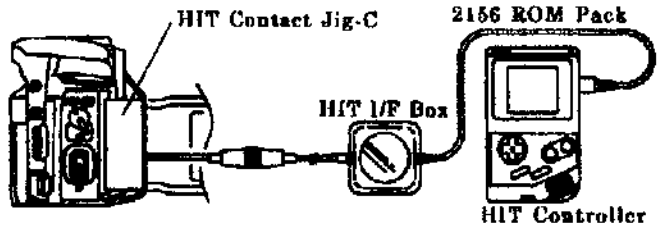
1.Pressing and holding Self-Timer/Drive-Mode Button and Shutter-Release Button (S2) simultaneously, slide Main Switch to ON.

■Check-2

1.Set up the equipment as in Fig. 1.
2.Select "TROUBLE CODE" from assist mode menu and press SELECT Button.
3.Press Shutter-Release Button partway down (S1 ON). Trouble codes appear.
*To erase the codes in memory, select "CLEAR" and press SELECT Button.
4.Select "MENU" and press SELECT Button. Displays are replaced with the assist mode menu.

■Equipment required for Check-2
HIT Controller
HIT I/F Box
2156 ROM Pack
HIT Contact Jig-C

■Fig. 1



■Trouble code list
*Marked error codes appear only when the trouble occurred successively for twice in a roll.

Condition	Cause	Indication	Code	Data panel
Mirror up failure	SREL does not turn ON within 375ms after M1 normal drive.	SREL contact failure	50	Turns off
Aperture operation failure	Aperture pulse is not generated within 80ms after SREL ON.	Aperture magnet failure	*51	Err
Aperture operation failure	Aperture pulse is generated in 80ms after SREL ON but number of pulses less than required.	Aperture pulse failure	*52	Err
Mechanical charge failure	SLOAD isn't ON, SREL isn't OFF within 750ms after M1 normal drive.	No M1 normal drive	53	Turns off
Mechanical charge overrun	SLOAD is OFF when reverse brake completes after mechanical charge.	Mechanical charge goes too far.	54	Turns off
Mechanical charge overrun	SLOAD is OFF before M1 normal drive start	Mechanical charge goes too far.	55	Turns off
Mechanical changeover failure	SLOAD isn't OFF within 250ms after M1 normal drive start.	Mechanical operation failure	56	Turns off
Shutter isn't set	SX is ON before shutter 1C run	Shutter magnet failure, SX contact failure	*57	Err
Shutter doesn't run	SX isn't ON after 1C run and SREL ON	Shutter failure	*58	Err
Rewind failure	Rewind pulse is 16 pulses less than required.	PR failure	20	Err
AE adjustment failure	AE adjustment is not set between 2.3V and 2.6V.	IC2 failure	02	Err
CCD failure	Integration signal doesn't change within 4ms after CCD data output.	CCD failure	01	Err
Flash charge circuit failure	Charge is not completed within 30 sec.	Flash PCB failure	03	BC Lock

Map of electrical elements

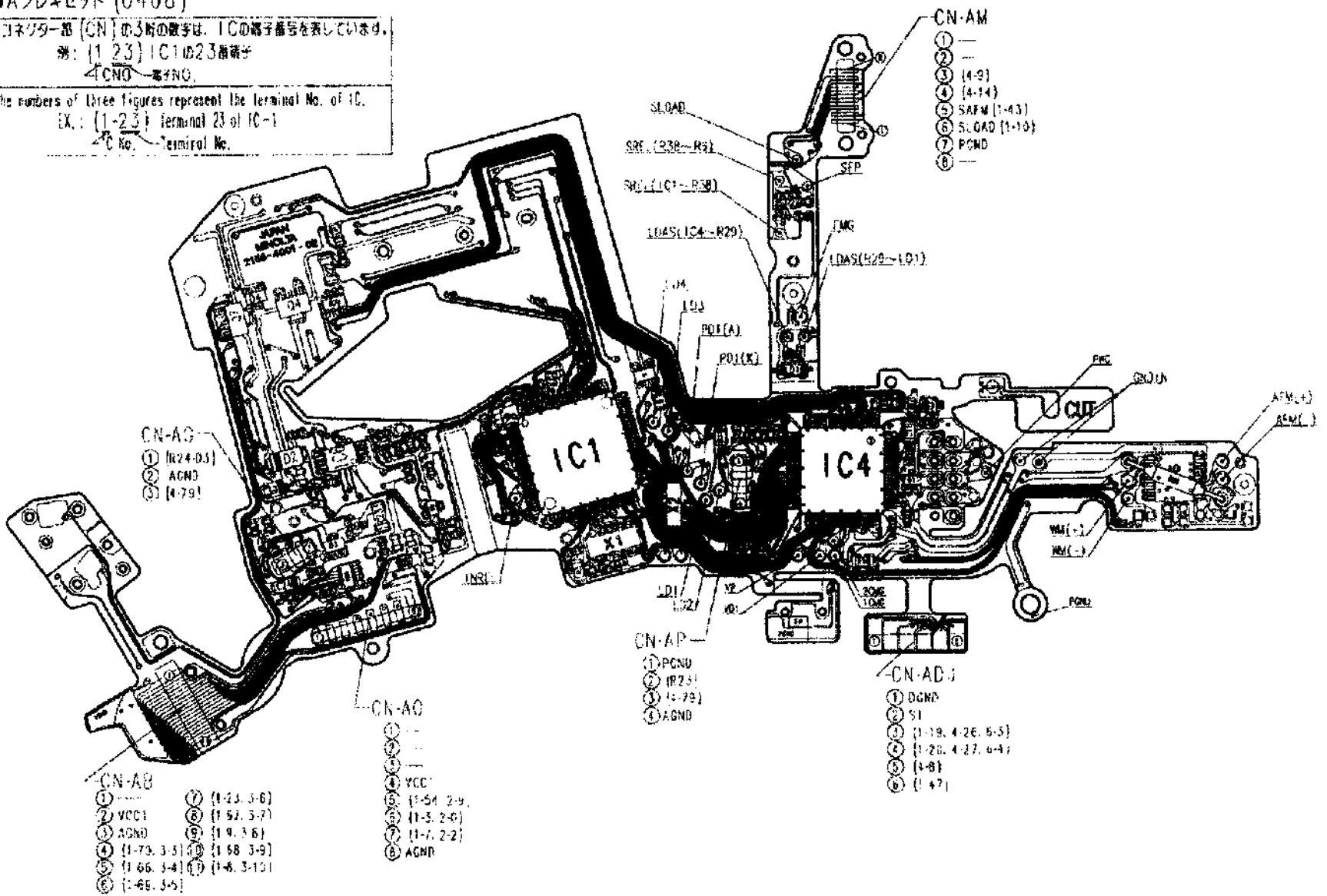
Electrical Elements list

Element	Location	Element	Location	Element	Location
C 1	4C	FU 1	8D	R 8	2D
C 2	3D			R 10	6D
C 3	4D	IC 1	4D	R 14	3B
C 4	4D	IC 4	6D	R 17	3D
C 5	5B	IC 5	8D	R 18	3C
C 6	2D	IC 6	3D	R 19	6C
C 9	6C			R 20	3C
C 10	5C	LD 1	5C	R 21	3B
C 11	6C			R 22	3B
C 12	6D	Q 1	6D	R 23	3D
C 13	6C	Q 2	2D	R 24	3D
C 14	6D	Q 3	6C	R 25	3D
C 15	4C	Q 4	3C	R 26	3D
C 16	3C	Q 5	3D	R 27	5D
C 17	3C	Q 7	2C	R 28	5D
C 18	3C	Q 8	3D	R 29	5C
C 19	5C			R 30	3C
C 20	5C	X 1	4D	R 31	3C
C 21	6D	X 2	5D	R 32	5C
C 24	3D			R 33	3D
C 25	3D	R 1	3D	R 36	5B
C 26	5B	R 2	3D	R 37	5C
		R 3	4D	R 38	5C
D 1	5C	R 4	4D	R 41	4C
D 2	3D	R 5	3D		
D 3	3D	R 6	5B		
D 4	2C	R 7	3D		

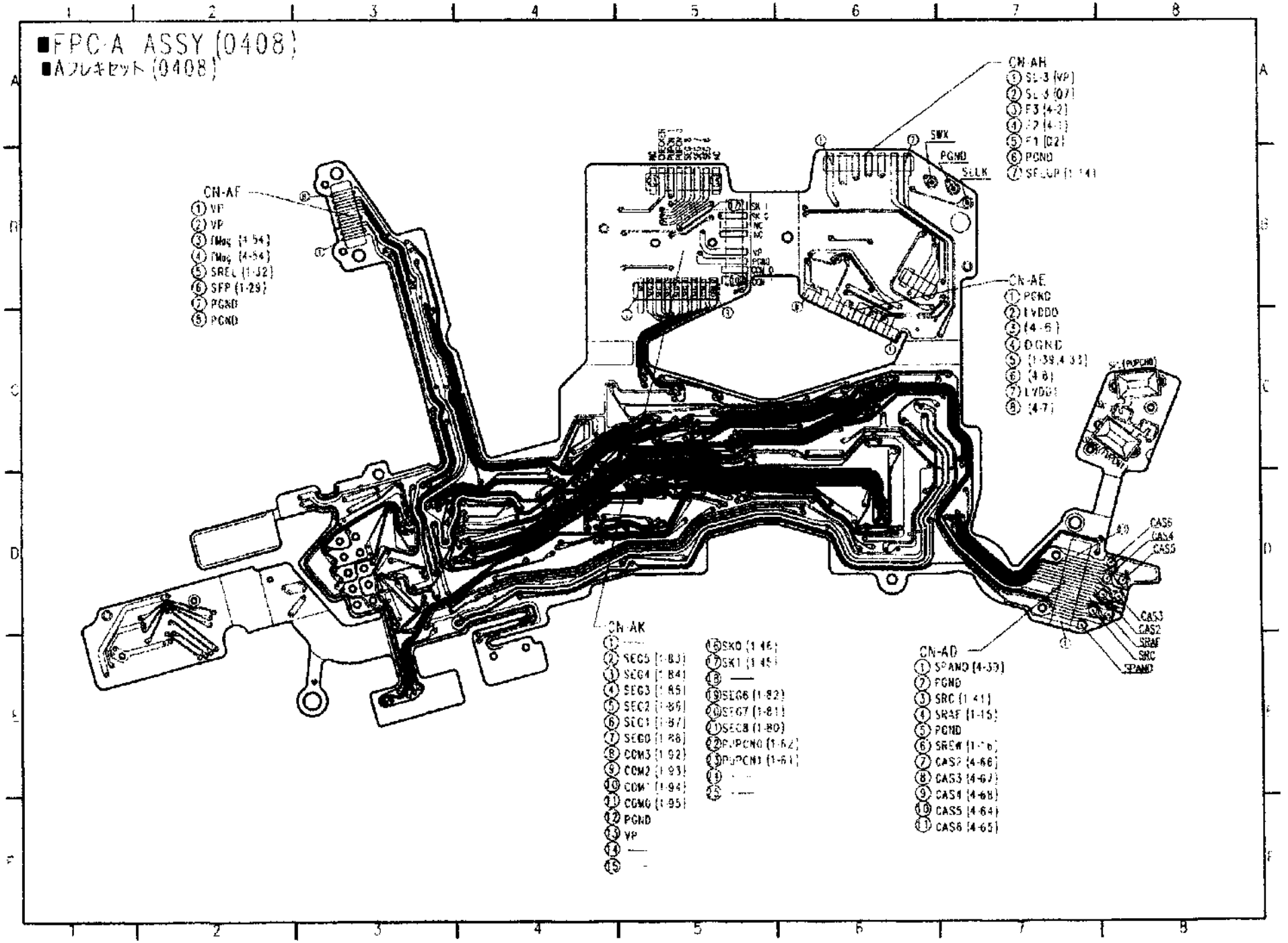
■FPC A ASSY (0408)
■Aフレキセット (0408)

・コネクター部 (CN) の3桁の数字は、ICの端子番号を表しています。
例: (1-23) IC1の23番端子
CN NO. 端子NO.

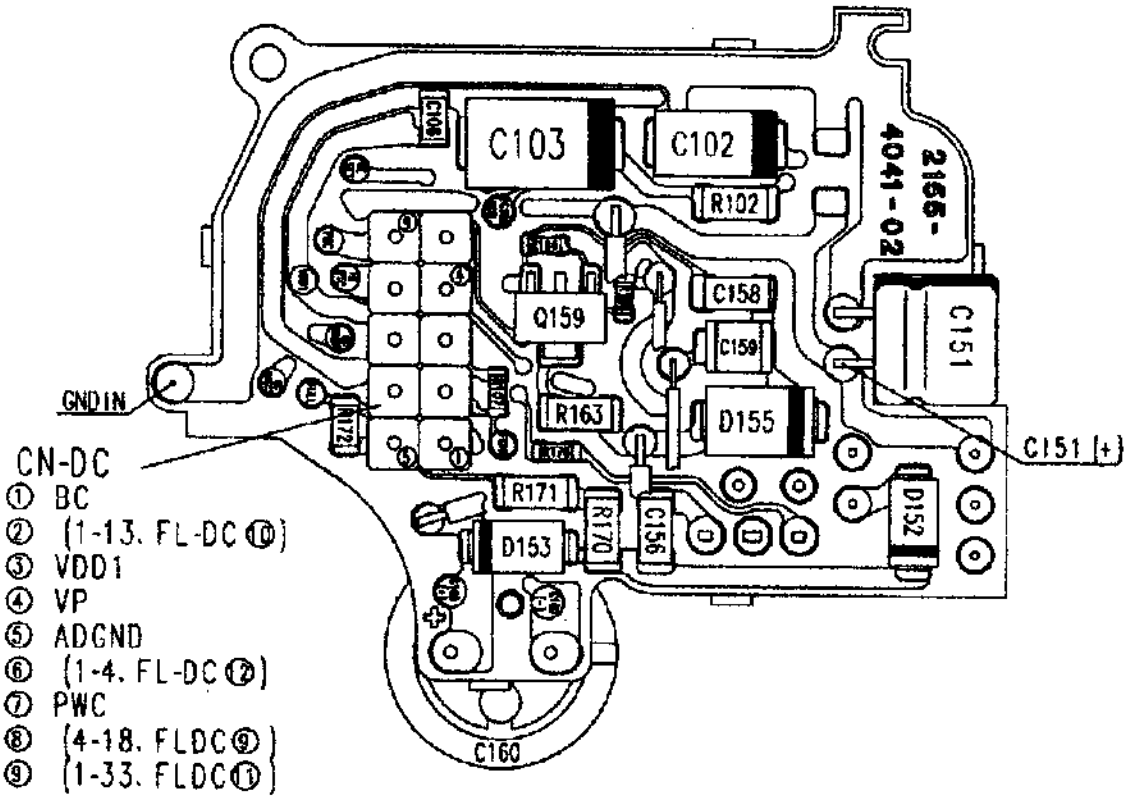
The numbers of three figures represent the terminal No. of IC.
EX.: (1-23) Terminal 23 of IC-1
IC No. Terminal No.

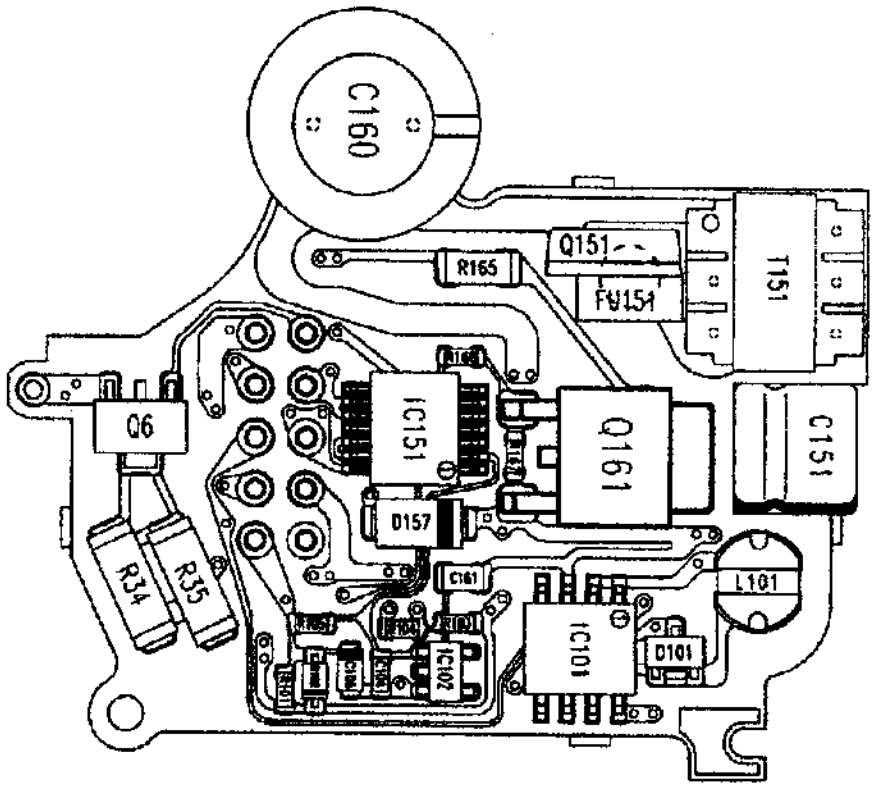


8 A(2156)


■FPC-A ASSY (0408)
■Aフレキセット (0408)
CN-AH
SW1
SW2
SW3
SW4
SW5
SW6
SW7
SW8
SW9
SW10
SW11
SW12
SW13
SW14
SW15
SW16
SW17
SW18
SW19
SW20
SW21
SW22
SW23
SW24
SW25
SW26
SW27
SW28
SW29
SW30
SW31
SW32
SW33
SW34
SW35
SW36
SW37
SW38
SW39
SW40

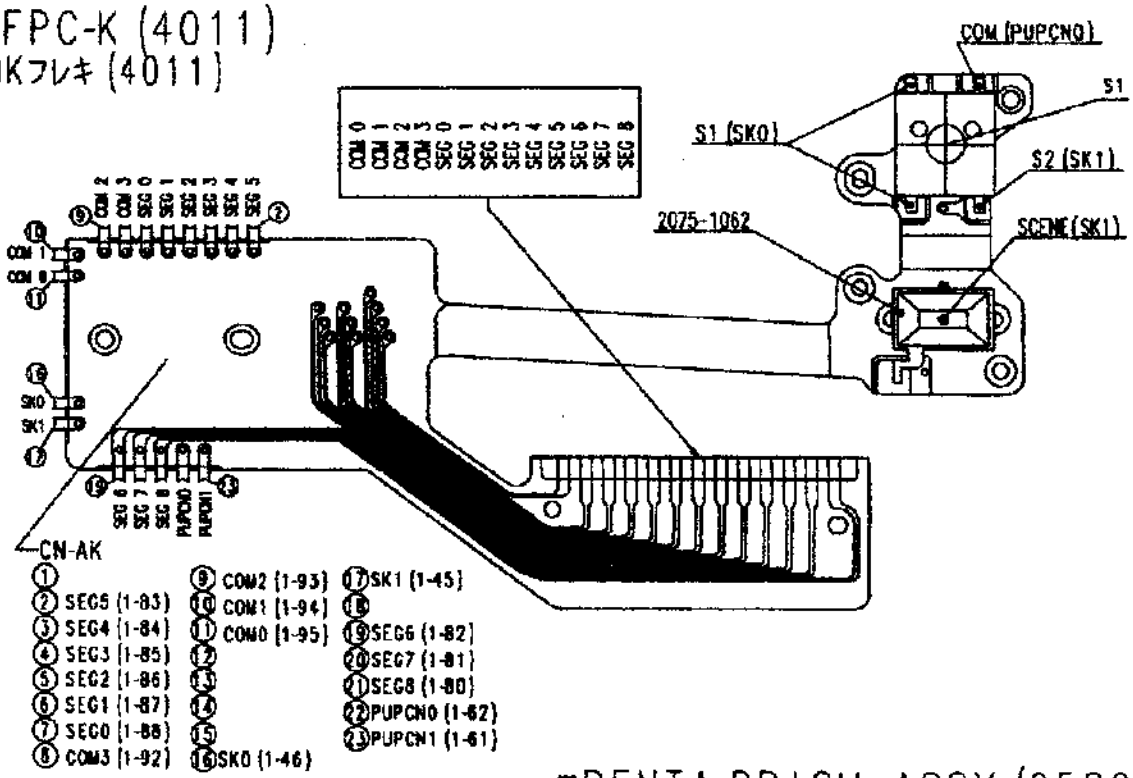
■FLASH CONVERTER PCB ASSY (2155-0455)
■フラッシュコンバーター基板セット (2155-0455)



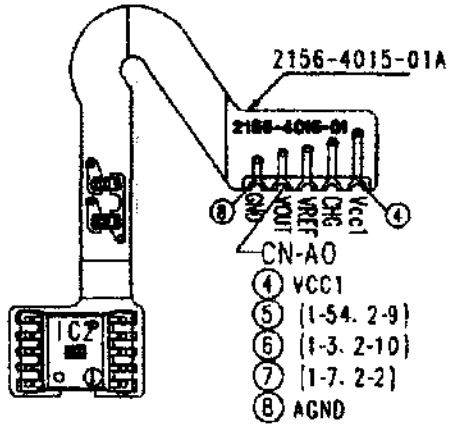


10 A(2156)

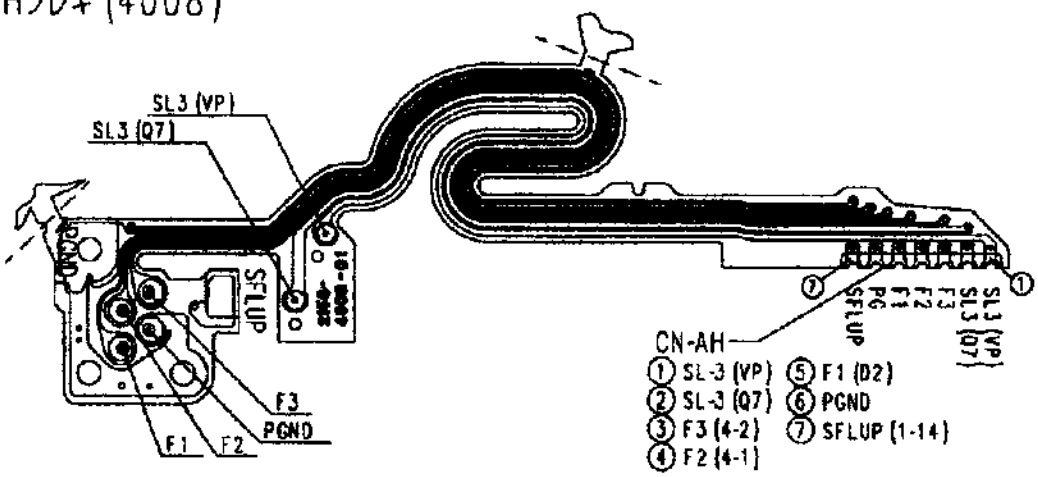
■FPC-K (4011)
■Kフレキ (4011)



■PENTA-PRISM ASSY (0580)
■ペンタプロックセット (0580)

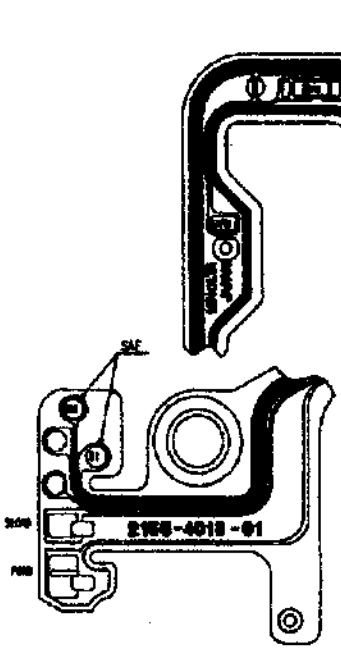


■FPC-H (4008)
■Hフレキ (4008)



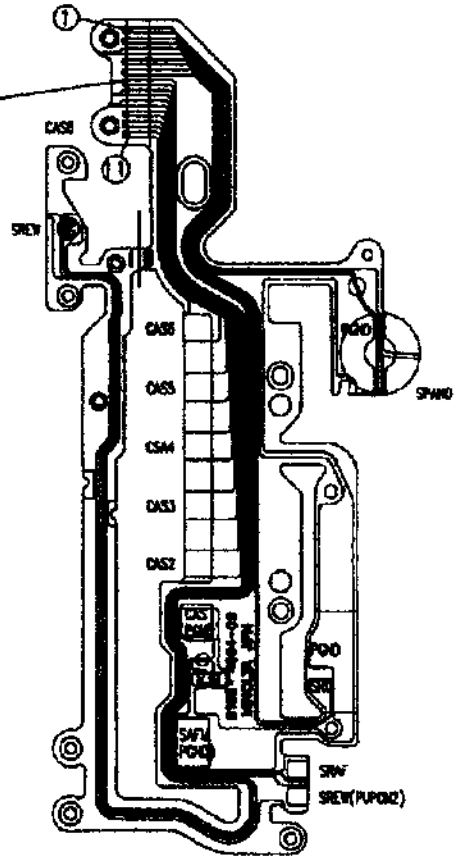
CHART

■FPC-M ASSY (2155-0413)
■Mフレキセット (2155-0413)



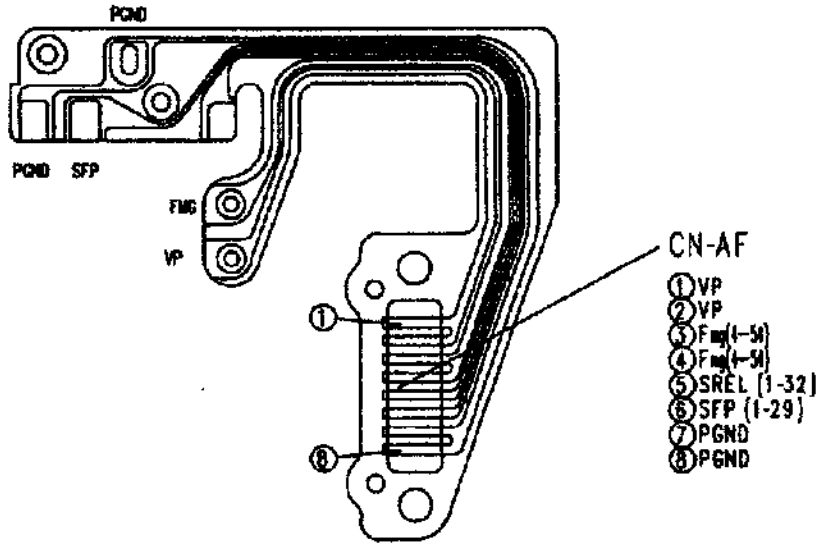
CN-AM
① —
② —
③ (4-9)
④ (4-14)
⑤ SAFM (R16)
⑥ SLOAD (1-10)
⑦ PGND
⑧ —

■FPC-D ASSY (2155-0404)
■Dフレキセット (2155-0404)

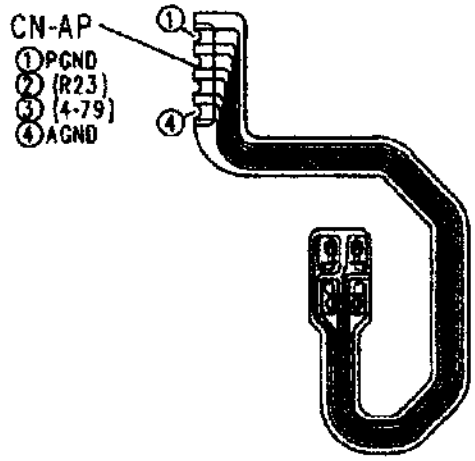


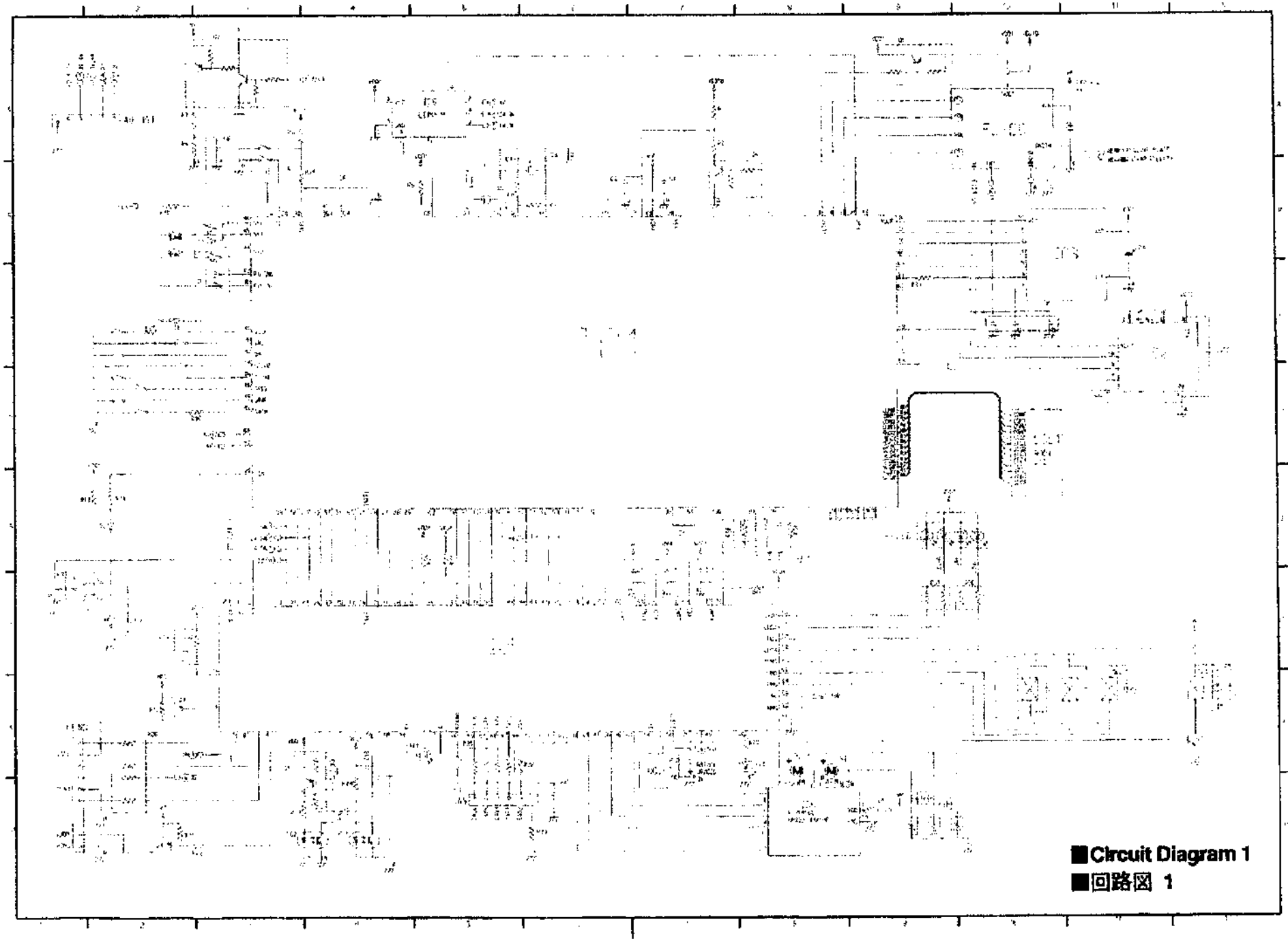
CN-AD
① SPAN0 (4-30)
② PGND
③ SRC (1-41)
④ SRAF (1-44)
⑤ PUPCN2 (1-60)
⑥ SREW (1-45)
⑦ CAS2 (4-66)
⑧ CAS3 (4-67)
⑨ CAS4 (4-68)
⑩ CAS5 (4-64)
⑪ CAS6 (4-65)

■APERTURE BASE PLATE ASSY (2153-0250)
■絞り台板セット (2153-0250)



■FPC-P ASSY (2153-0416)
■Pフレキセット (2153-0416)

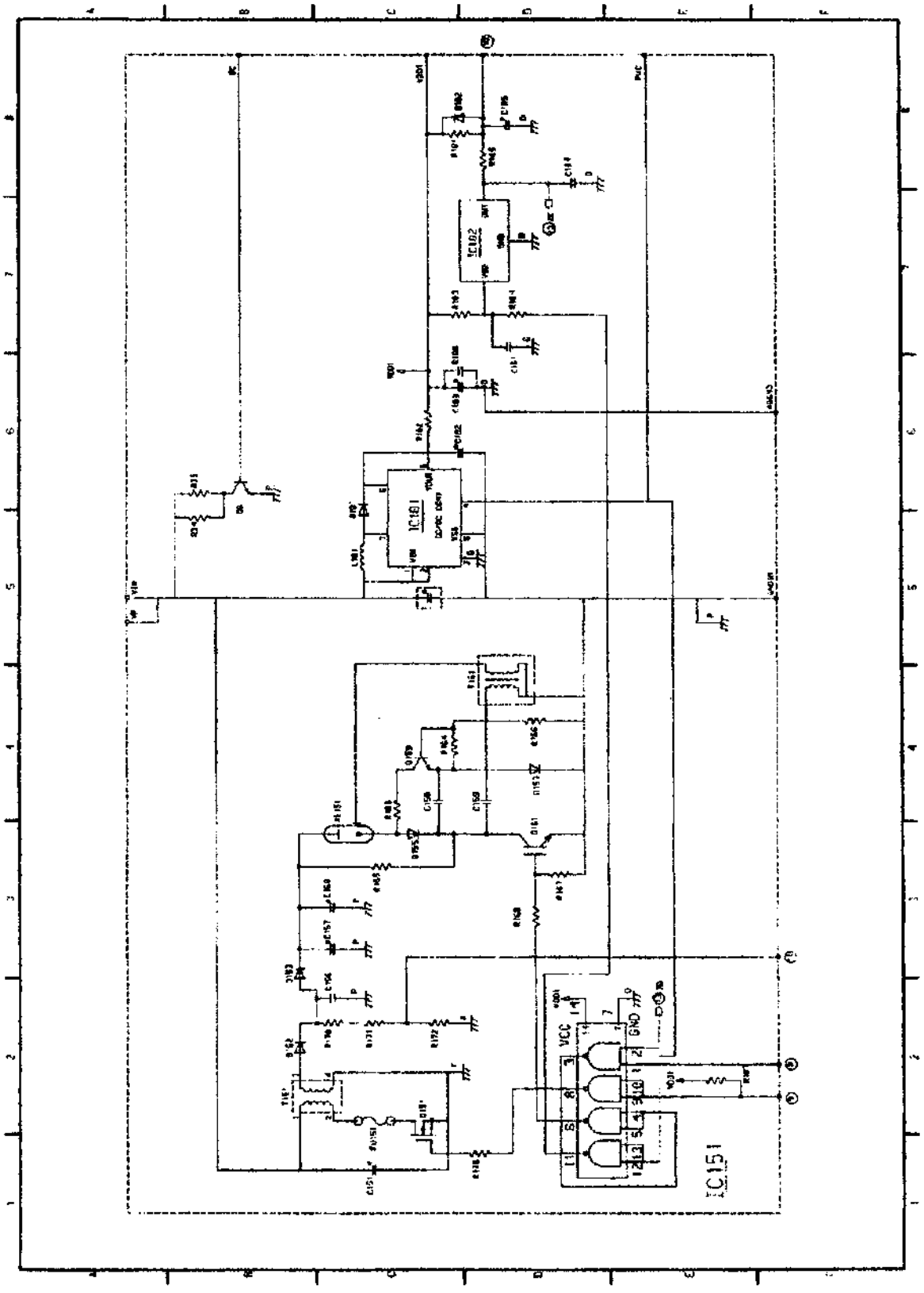




■Circuit Diagram 1
■回路図 1

14 A(2156)

■Circuit Diagram 1 (FLASH)
■回路図 1 (フラッシュ)



Check List

1. This Check List describes the quality of operation warranted to general users. When users inquire about quality or request inspection, refer to this Check List. Use this list also when checking operation after repair.
2. When using this list during shipping or receiving inspection, judge the quality according to the purpose of the inspection, not by directly referring to this level.
3. For individual taste or special usage, some users may not be satisfied with this level of quality and will request a different one. In such cases, adjust the level as requested by them as much as possible.
4. Checking items which are characterized as sensory test are not included. Adjust these items according to product or user' s request.

CONTENTS PAGE

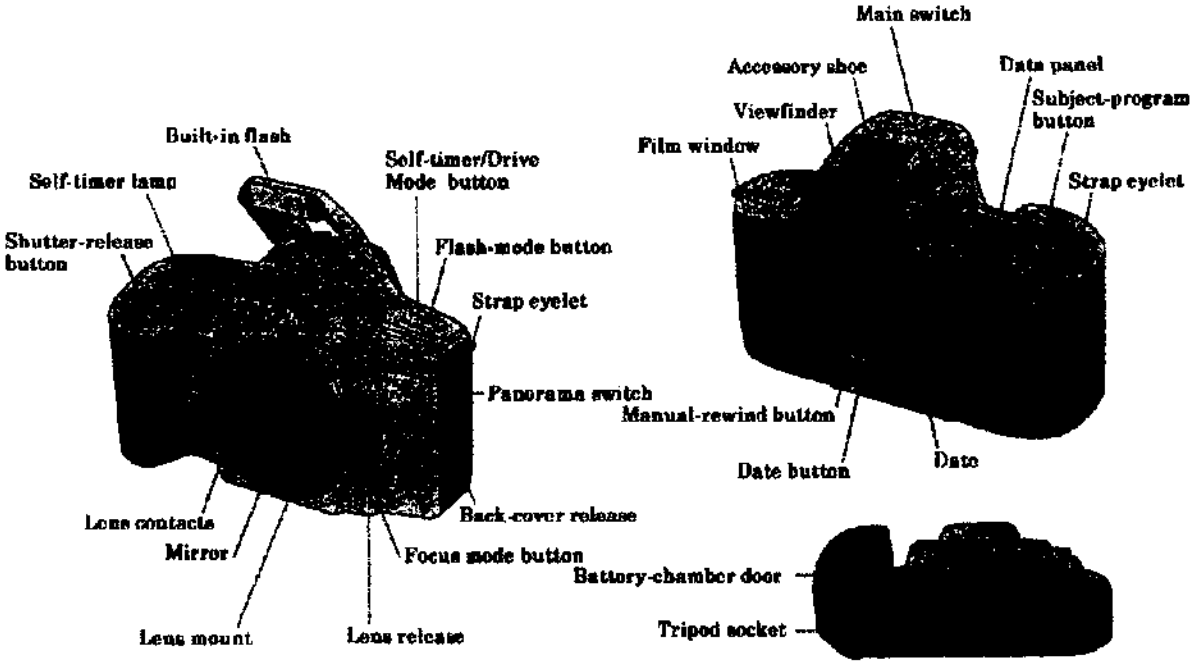
Name of parts ---- 2
Body ---- 2
Data panel ---- 2
Initial setting ---- 3
Battery installation ---- 3
Main Switch OFF ---- 3
S1 ---- 3
S2 ---- 3
Main Switch ON ---- 3
Flash-Mode Indicators ---- 4
Manual-Focus Indicator ---- 4
Drive Mode Indicators ---- 4
Panorama (panorama model only) ---- 4
Date (Date model only) ---- 4
Settings & Displays ---- 4
Subject-Program Indicator ---- 4
Customized Functions ---- 5
AF-illuminator on/off ---- 5
Service function-1 (F-- shutter lock on/off) -- 5
Service function-2 (All displays turn on) ---- 5
Service function-3 (Err code display) ---- 5

CONTENTS PAGE

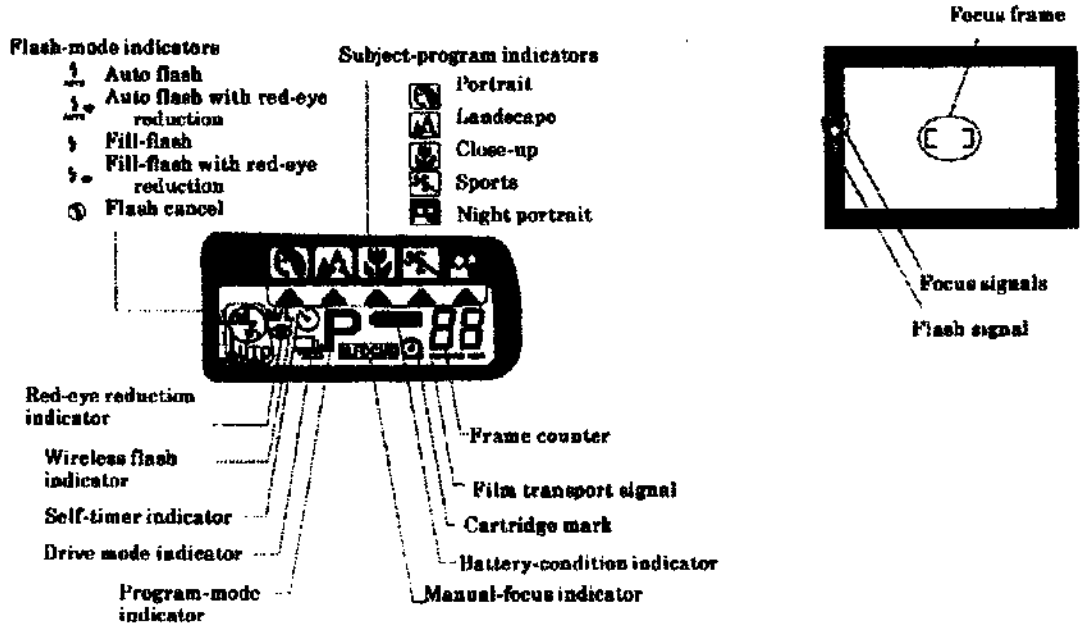
Controls & Operations ---- 6
Subject program mode ---- 6
Flash mode ---- 6
Film Transport ---- 7
Drive mode ---- 7
Focus ---- 7
Current leak ---- 8
Quality standard ---- 8
AE Level ---- 8
BC lock voltage ---- 8
Body back ---- 8

Name of parts

Body



Data panel



Initial setting

Battery installation

·Installing a battery sets the camera as follows:

Subject program mode	P	Wireless flash	Canceled
Drive mode	Single	Red-eye reduction	Remain in previous setting
Focus mode	AF	ISO	
Flash mode	Auto	Frame Counter	

·Installing a battery resets lens as;

Non-xi-lens	Set to a specific focus position after infinity-reset
Xi-lens	Set to a specific focus position after wide-end-reset

Main Switch ON

·Battery-Condition Indicator appears for 5 sec.
·Sliding Main Switch to ON sets the camera to;

Subject program mode	P	Wireless flash	Canceled
Drive mode	Single	Red-eye reduction	Remain in previous setting
Focus mode	AF	ISO	
Flash mode	Auto	Frame Counter	

· Film rewind re-starts if it was not completed.
· Flash charge starts if flash mode is Auto or fill-flash.
·Sliding Main Switch to ON sets the lens to;

Non-xi-lens	Set to a specific focus position after infinity-reset
Xi-lens	Set to a specific focus position after wide-end-reset

Main Switch OFF

·Sliding Main Switch to LOCK sets the camera to:
· All displays in Data Panel disappear.
· Film rewind stops midway.
· Err data is reset.
·Sliding Main Switch to LOCK sets the lens to;

Non xi lens	Infinity-reset
xi lens	Retracts to the minimum length

S1

·Pressing Shutter-Release Button partway down (S1) starts focusing and metering.
·A battery condition indicator may appear if power is low.
·In Auto flash mode, flash pops-up automatically if needed. If flash charge completes, flash charge starts.
·Lowering the fish while S1 is on cancels the flash.

S2

·Pressing Shutter-Release Button all the way down (S2) releases the shutter and advances the film.

Settings & Displays

Subject-Program Indicator

·By each press of Subject-Program Button, Subject-Program Pointer points a Subject-Program Indicator accordingly;
P → Portrait → Landscape → Close-up → Sports → Night portrait → P

Flash-Mode Indicators

·A flash mode indicator appears by pressing Flash-mode Button;
Built-in flash:
Auto → Red-eye auto → Fill → Red-eye Fill → Cancel → Auto
External flash (wireless available):
Auto → Fill → Cancel → Wireless auto →Auto
External flash (wireless not available):
Auto → Fill → Cancel → Auto

Manual-Focus Indicator

·Pressing Focus-Mode Button makes Manual Focus Indicator appear or disappear.
MF: "M.FOCUS" appears.
AF: "M.FOCUS" disappears, lens is set to a specific focus position after infinity or wide-end reset.

Drive Mode Indicators

·Pressing Self-Timer/Drive-Mode Button makes current mode appear:
Single drive → Self-timer → Continuous drive → Single drive

Panorama (panorama model only)

·Setting Panorama Switch to "Panorama" makes Panorama Frame appear in viewfinder to shield light.
·Date imprinting position shifts for panorama frame.

Date (Date model only)

·Pressing Mode Button changes Date display in the order of;
Month, Day, Year →Day, Month, Year →Year, Month, Day →
Day, Hour, Minute → ..... → Month, Day, Year
·Pressing Select Button starts blinking one of the figure.
·Pressing Select Button makes the next figure to blink in the order of;
Year →Month →Day →Hour →Minute
·Pressing Adjust Button changes the blinking figure.

Customized Functions

AF-illuminator on/off

·While pressing and holding Flash-Mode Button, Slide Main Switch to ON. Either of the following display appears in Data Panel.
On: AF illuminator will activate.
OF: AF illuminator will not activate.

Service function-1 (F-- shutter lock on/off)

·Pressing and holding Self-Timer/Drive-Mode Button and Subject Program Button simultaneously, Slide Main Switch to ON. Either of the following display appears in Data Panel.
On: Shutter is locked when film is loaded and no lens is attached.
OF: Shutter can be released when film is loaded and no lens is attached.

Service function-2 (All displays turn on)

·Pressing and holding Self-Timer/Drive-Mode Button and Flash-Mode Button simultaneously, slide Main Switch to ON.
·Re-install batteries or sliding Main Switch to OFF and ON resumes normal display.

Service function-3 (Err code display)

·Pressing and holding Self-Timer/Drive-Mode Button and Shutter-Release Button (S2) simultaneously, slide Main Switch to ON. Current trouble code appears in display if any.

Controls & Operations

Subject program mode

·Shutter-speed and Aperture are automatically set.

Flash mode

·Flash Signal lights steadily when flash charge is completed.
·Flash Signal disappears and shutter is locked until flash charge com-pletes.
·Flash Signal blinks in 2Hz when flash control is completed.
·Flash recycling time (with Single-drive, No red-eye reduction)
Within 3.9 sec. (5.6V, 0.6 ohm using Power Supply Adapter)
·Flash control shutter speed.

Subject-Program mode	Normal	Wireless
P and all Subject-Program mode except for Night-Portrait	1/90 – 1/45	1/45
Night Portrait	1/90 – 2	1/45 - 2

Autoflash

·Flash pops-up and starts charging by S1 on.

Exposure mode	Low light	Back lit
P, Portrait, or Landscape	YES	YES
Close-up or Sports, Night Portrait	YES	NO

Wireless flash

·By attaching a dedicated flash (set in wireless mode), wireless mode and corresponding wireless channel is automatically set to the camera.
·Pressing Subject-Program Button makes a test burst.
·While pressing and holding Flash-Mode Button, wireless ratio photograph is available; Built-in flash : Off-camera flash = 1 : 2

Red-eye reduction

·Pressing Shutter-Release Button makes small flash bursts prior to the main burst.

Film Transport

Initial loading

·When initial load completes, "●" appears in Frame Counter.
·When initial load fails, blinking "●" appears in Frame Counter and shutter is locked.
·Initial load starts even when Main Switch is OFF.
·Initial load time: 2.4 sec.
(With Kodak Gold 100 24 exp.; reference voltage of 5.6V, 0.6 ohm using Power Supply Adapter.)

Film advance

·Frame counter increases according to exposure.
·Advance time: 0.7 frame per sec.
(In continuous mode; EV10; reference voltage of 5.6V, 0.6 ohm using Power Supply Adapter.)

Film rewind

·Film rewind automatically starts at the end of the roll.
·Pressing Rewind Button starts film rewind regardless of Main Switch ON or OFF.
·Number in Frame Counter decreases during film rewind.
·Cartridge Mark and "0" blink when film rewind is completed.
·Rewind time: Approx. 24 sec.
(Kodak Gold 100 24 exp.; Reference voltage of 5.6V, 0.6 ohm)

Drive mode

Single

·Shutter runs only once while Shutter-Release Button is kept pressed.
·In AF mode, shutter doesn't run unless focus is confirmed.

Continuous

·While Shutter-Release Button is pressed and held, shutter runs continuously.
·In AF mode, shutter doesn't run unless focus is confirmed. (Continuous AF on and after the second shot)

Self-timer

·Pressing Shutter-Release Button locks exposure and focus.
·Self-timer Lamp operates as follows during countdown;
blinks in 2Hz (8 sec.) → blinks in 8Hz (1 sec.) → lights still (1 sec) → Shutter release

Focus

AF

·Continuous AF in Sports mode. Focus is not locked when confirmed.
·By S1 ON, AF starts and a Focus Signal appears accordingly;
● lights: Focus is confirmed and locked
●● lights: Focus confirmed with continuous AF
lights: Focus not confirmed with continuous AF
● blinks: Out of metering range; low-contrast
None: During focusing

MF

·By S1 on, Focus Signal appears accordingly;
● lights: Focus is confirmed
None: Focus is not confirmed; low-contrast

AF illuminator

·In AF mode, if not for continuous AF, AF illuminator lights automatically in low-contrast and low-light condition (-3BV or less). If dedicated flash is attached, its AF illuminator lights in low-light condition of -1BV or less.

CHECK LIST

Quality standard

AE Level

Manual shutter speed

·Manual shutter speed (See page 29 of Repair Guide)

SS	Standard (ms)	Tolerance (ms)	Dispersion	Unevenness
1/2000	0.488	0.311 - 0.765	Within 0.45EV	Difference between A-B-C range is within 0.6EV. Difference between A-B, B-C is within +/-0.3EV.
1/1000	0.977	0.623 - 1.533		
1/500	1.95	1.590 - 2.400	Within 0.30EV	
1/250	3.91	3.170 - 4.810		
1/125	7.81	6.350 - 9.620		
1/60	15.6	12.70 - 19.20		
1/30	31.3	29.20 - 33.50		
1/15	62.5	58.30 - 67.00		
1/8	125	117 - 134		
1/4	250	233 - 268		
1/2	500	467 - 539		

X-sync delay time

·X-sync delay time (See page 29 of Repair Guide)

SS	Measuring item	Allowance
1/90	X-contact delay time	0.4ms or longer
	Time from X-ON to 2nd curtain appearance	2.0ms or longer

Auto

·Auto (50/1.7 lens, ISO100, K1.3; See page 30 of Repair Guide.)

Exposure mode	Luminance	Allowance
P	EV15	Within 0+/-1.0EV

Flash level

·Flash level (See page 31 of Repair Guide)

F4 +/- 0.5EV (ISO 100)

Current leak

· Current leak
(5.6V, 0.6 ohm; Using Power Supply Adapter; See 38 of Repair Guide)

At Main Switch LOCK	30 μA or less
At Main Switch ON	50 μA or less

BC lock voltage

· BC lock voltage
(11ohm; Using Power Supply Adapter; See page 38 of Repair Guide)

Shutter locks at 4.7V or less, unlocks at 5.1V or more.

Body back

·Body back (See page 26 of Repair Guide)

44.675 - 44.730mm